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***WEAVING MAHINGA KAI
AND
LANDSCAPE ARCHITECTURE:***

*Design with nature through
people-ecology interactions*

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in partial fulfillment of the requirements for
the Degree of Master of Landscape Architecture
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ABSTRACT

This dissertation investigates in what ways does mahinga kai offer opportunities for the discipline of landscape architecture, both within Aotearoa, New Zealand and potentially beyond. It applies a 'dwelling perspective' to the concepts of mahinga kai as a means to expand the discipline's conceptualisation of landscape. It does this through adapting design-oriented tools currently found within landscape architecture research, and grounding them in a case study and a design investigation located within the setting of productive landscapes. The results of this research are four-fold.

First, it finds that a culturally encompassing interpretation of mahinga kai, and its concepts, sites and practices, has significant potential to broaden landscape architecture's conceptualisation of nature and landscape.

Second, it finds that a quadrant-based tool has the potential to extend landscape architecture's current approaches in conceptualising the diverse concepts, sites and practices of mahinga kai. It illustrates mapping as a method of inquiry, in which the reciprocal relationships

between site and practice, and the utilisation and protection of resources can be expressed and explored in greater depth.

Third, through a design investigation, it finds that concepts of mahinga kai have the potential to extend the scope of landscape architecture beyond its current focus to shape specific sites. It identifies that alternative mahinga kai-driven practices – such as reciprocal learning programmes between outsiders and inhabitants – can be designed to materially produce the economic and ecological outcomes of productive landscapes.

Finally, it finds a future direction for landscape architecture is to further identify and develop methods that could embrace the cultural complexity of mahinga kai and its concepts. The research illustrates the potential for future research to engage in a greater depth of dialogue in which both landscape architecture and concepts of mahinga kai extend landscape's role in engaging the positive influence of human activity in designing with nature.

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chapter one

INTRODUCTION

1.1. Questioning landscape architecture's role in the Anthropocene: nature, ecology and design

In the age of Anthropocene, human influence is intertwined with the changing environment. The concept of nature and culture become inseparable. Every human activity has its impact on the environment. Thus it is critical, to re-imagine human agency as a “constructive rather than destructive part of nature” (Weller, 2017). As Jedidiah Purdy writes, “[t]he question is no longer how to preserve a wild world from human intrusion; it is what shape we will give to a world we can't help changing” (2015).

Landscape architecture works at the core of this question. Ian McHarg in ‘Design With Nature’ influentially portrays the discipline as a “planetary steward” (1969: cited in Weller, 2016). His work has expanded the discipline's creative relationship with nature – by promoting ecology as something cultural that can be designed (Prominski, 2017). McHarg's method of mapping the landscape as biophysical layers, has underpinned the discipline's understanding landscape. ‘Design with Nature’ has grown the influence of

landscape architecture (Yang & Li, 2016), but has the scope of landscape architecture grown out of this influence?

Richard Weller critically reflects on the influence of McHarg's work. He argues that in the last fifty years, landscape architecture has been devoted to two ideas – creating “a sense of place” and achieving some form of “environmental stewardship”. These have underpinned the scope of the discipline – to creating “place-based aesthetics” and improving the “ecological function of places”(Weller, 2016: 5). Weller questions whether these ideas could help landscape architecture fulfill the mandate of planetary stewardship. To this he writes:

So whilst we can and should critique both a sense of place and stewardship, for their superficiality and impossibility respectively, Landscape architecture is unthinkable without these grand narratives. And if you are genuinely interested in the field it is incumbent upon you to develop your own critical and philosophical disposition toward them – for without that – the profession is a mere service industry, and design little more than following fashion. (Weller, 2016: 5)

Weller's reflection is confronting. It is more so if we consider a key role landscape architecture could play in the Anthropocene – to activate human agency as a positive change in making a better environment (Weller, 2017; Meyer, 2008). In this the discipline has to *act as a catalyst, intervening in every people-nature encounter to shape the behaviours that shape the planet*. Landscape architecture must expand its creative scope in how to 'design with nature' – that we (for here I am a landscape architect writing this as the first component of a masters dissertation) do not just shape nature to our benefits, but also *let it shape us* (Soule, 2017).

It within this challenge I reflect on my landscape design work in Aotearoa, New Zealand, questioning how landscape architecture in this country could contribute to this possibility, and what concepts could expand our creative scope of 'designing with nature'?

1.2. An alternative to 'design with nature' in the Anthropocene: expanding the scope of the 'site'

For the past three years I have been involved in a number of design-directed research projects in Lincoln University's DesignLab (Abbott, Blackburne, Lee, Li & Boyle, 2017; Abbott, Blackburne, Boyle, Lee & Pickett, 2018; Abbott, Boyle, Blackburne & Lee, 2018; Abbott, Roncken, Lee & Pickett, 2018;

). Within this body of work is a core focus on designing experiences that could grow people's connections with nature. In exploring this, I have been a part of a number of projects including the interpretation design at Arthur's Pass National Park Visitor Centre, regenerative planting of productive landscape, development of regional tracks and trails networks, marine protected areas and an exhibition on New Zealand's national parks in Beijing (DesignLab, 2019). While this work has all been grounded in landscape they each question what 'site' in terms of landscape architecture could be (Abbott et al, 2018). Mick Abbott in 'Practices of the Wild: A Rewilding of Landscape Architecture' proposes an expansive understanding of 'site' (2015). He argues landscape architecture's "preoccupation with landscape as a site - as both a pre-given spatially founded locale" is limiting to its scope. To this Abbott proposes a participatory approach to understanding landscape and 'site', which emphasises on interactions and engagement. He writes:

For landscape architecture there is significant scope to expand its generative and creative relationship with landscape beyond the understanding of a landscape's system and the shaping of specific sites. Given landscape architecture's intimate knowledge of the value of landscape, and the ways it enables people and ecology to interact, there are opportunities to design behaviors, tools, technologies, devices, and strategies where endemic biodiversity and ecological resilience are nurtured. (2015: 35)

Expanding on this work, Abbott, Blackburne, Boyle, Lee, and Pickett in 'A New Wild: Re-imagining the potential of indigenous biodiversity in Aotearoa, New Zealand' explore what are alternative design possibilities from 'designing with nature' (2018). Supported by seven projects, this paper proposes "an understanding of biodiversity based on the active involvement of people, a performative landscape whose value rests on people being integral and a part of its deep nature, rather than understood as separate and apart" (2018: 90). In this they consider the endemic nature of New Zealand as "a frontier full of new potentials" (2018: 78).

In New Zealand, people identify the country's endemic species as what underpin their identity. Many of these bird, plant, fish and invertebrate species have evolved as a result of the country's geographical isolation (Brooking and Pawson, 2013). The arrival of people approximately 900 years ago have brought a number of threats, particularly in the forms of deforestation, draining of wetlands and introduced mammalian predators, causing extinction to many species (Park, 2006). For New Zealanders, extinction is not just a loss of biodiversity, but an expression of a deep disconnection between themselves and the endemic nature that they identify themselves with. To this protected areas have been set up, primarily for conserving these species and their habitats, with ecological restoration as one of the fastest growing outdoor recreation activities in New Zealand. These activities are carried out in every corner of the country, from people's backyards to the heart of the city,

from a local river to the sea.

However, people's relationships with these species go beyond the confine of these places, and beyond the sole purpose of protection and restoration.

New Zealand's endemic nature has enriched a number of cultural values and practices. Māori – the indigenous people of this country, express a reciprocal relationship with nature. They consider the endemic species and ecosystems of this country as taonga (treasure). One significant expression of this is the concepts and practices of **mahinga kai** – that Panelli and Tipa consider to be an "all inclusive term" that involves the "simultaneous protection and use of resources" (2009: 459). Working these resources have inspired practices and ecological knowledge. These in turn enable the "sequential utilisation of a variety of resources that occurred in widely scattered localities" (Beattie, 1994, cited in Panelli & Tipa, 2009: 459). The practices of mahinga kai have also adapted to societal and environmental changes. For example, holistic approaches to managing the population of species have been developed to ensure future generations could still connect with these practices. Within this context, the concepts and principles that underpin mahinga kai are becoming increasingly influential in contemporary Aotearoa New Zealand (Roberts, Norman, Minhinnick, Wihongi & Kirkwood, 1995). For landscape architecture, design of regenerative landscape in particular has been incorporating the concepts and values of mahinga kai.

In my work, I have benefited from working with people to explore how the values of mahinga kai could be creatively expressed. In the Aotearoa New Zealand Eden Project in Christchurch, DesignLab worked with the Matapopore Charitable Trust design teams. The project sought to regenerate a landscape that has been affected in the earthquakes due to liquefaction, which resulted in a clearance of housing within the area. The site was located in a part of the Avon Ōtākaro River corridor, which the project intended to turn into a major nature-based attraction for the city (see project details on designlab.ac.nz). While engaging with ecologists on restoring the habitats of tuna (eel), a key insight was revealed – the ‘site’ should encompass the whole of the river corridor, and is woven by a series of places with deep ecological, cultural and social significance. This understanding was accentuated when we were engaged with the concepts of mahinga kai, particularly with the cultural harvesting of tuna (eel). First, we explored the hīnaki and its unique qualities – an eel pot woven for catching tuna. This inspired landscape and architectural forms that work across scales and ‘sites’. Second, we approached the regenerative design of the river by a designing of activities. The ‘site’ was programmed with a series of interactions and encounter that could engage people with the values of kaitiakitanga – to “create spaces, programmes and perspectives around the Eden site which invite a want to care and a want to celebrate” (DesignLab, 2017: 6). Third, we designed social interactions to prepare the ‘site’ for adapting and welcoming landscape change such as sea-level rise.

This involved time-based interventions that programmed the ‘site’ as a series of rituals, events, festivals and performances along the river corridor. Over time we envisioned every local and visitor within the city becoming the ‘environmental steward’ of the river. The values of manaakitanga (hospitality) have led to proposing that future entry to the site should be free of charge, so that everyone can be hosted. At the end the project became more than an attraction. It was developed to become a “catalyst for the river’s transformation and as provider of rich experiences that weaves together the CBD and Red Zone corridor of programs” (DesignLab, 2017: 2).

1.3. Research questions

From this work with the Avon Ōtākaro River and Matapopore Charitable Trust, I perceived how the concepts of mahinga kai might hold strong potential to expand how landscape architecture could ‘design with nature’, especially through the designing of people-ecology interactions. Challenges remain on how the discipline could consider this potential – particularly in conceptualising the cultural complexity of mahinga kai and its many interrelated concepts and values. As such, this research has sought to explore methods landscape architecture could use to consider the concepts of mahinga kai, particularly in conceptualising and designing landscape. It is within this context this dissertation has sought to consider the complexity mahinga kai

and its concepts entail, in order to expand the possibility and imaginative scope for landscape architecture.

In reflecting on my work in commencing this dissertation I have sought to identify the key questions that engage me and that hold deep relevance into my work beyond this masters studies.

The concepts of mahinga kai have influenced how I understand landscape. This involves a shift in viewing nature as something that is either extracted or protected, to one in which nature's instrumentality is engaged in shaping people's practices and interactions. Also, this involves a shift in reading and designing 'site' from simply a place for enhancing functions and contributing meanings, to one in which activities and engagement are enabled to shape people's behaviours (Abbott et al, 2018). While these insights have underpinned a body of work (Abbott et al, 2018; Abbott et al, 2018; Abbott et al, 2018), they require greater theoretical grounding in ways that are relevant to landscape architecture. The opportunity presented here is how to best make these insights available and explicit, such that landscape architecture could build their imaginative scope.

Thus the first question asks – *how could concepts of mahinga kai expand landscape architecture's conceptualisation of landscape?*

Having considered this, the second question relates to tools for conceptualising the 'performative' qualities of landscape. In

reflecting on the methods we used for representing landscape-driven activities and interactions, one of the key tools we have explored was the time-based drawing using an iPad. Using a real-time drawing application, the process of drawing was recorded and produced into a video that communicates the phasing of the 'site' and how it would come to life over time. This was effective for presenting how a final design concept could be implemented over time. However, its capacity for conceptualising landscape and 'site' suggests much stronger potential.

Hence the second question asks – *what tools could be adapted to progress and ground insights into a method for conceptualising landscape and practices?*

As this dissertation develops and as possible tools emerge, a third question comes into play. While such tools might hold potential in describing and conceptualising landscape and concepts of mahinga kai, could they also generate future design and expand possibility?

Hence the third question in this dissertation asks – *what is the generative potential of this tool for designing with the concepts of mahinga kai?*

1.4. Research approach

This dissertation has undertaken multiple methods to enable a response to the research questions. Each method has been introduced respectively in details at the start of each section. The research process begins with a literature review considering existing

literature and their relevance to landscape architecture. The research then progresses from understanding to exploring tools for conceptualising and designing landscape through the theoretical lens of mahinga kai. These stages are shown in figure 1.

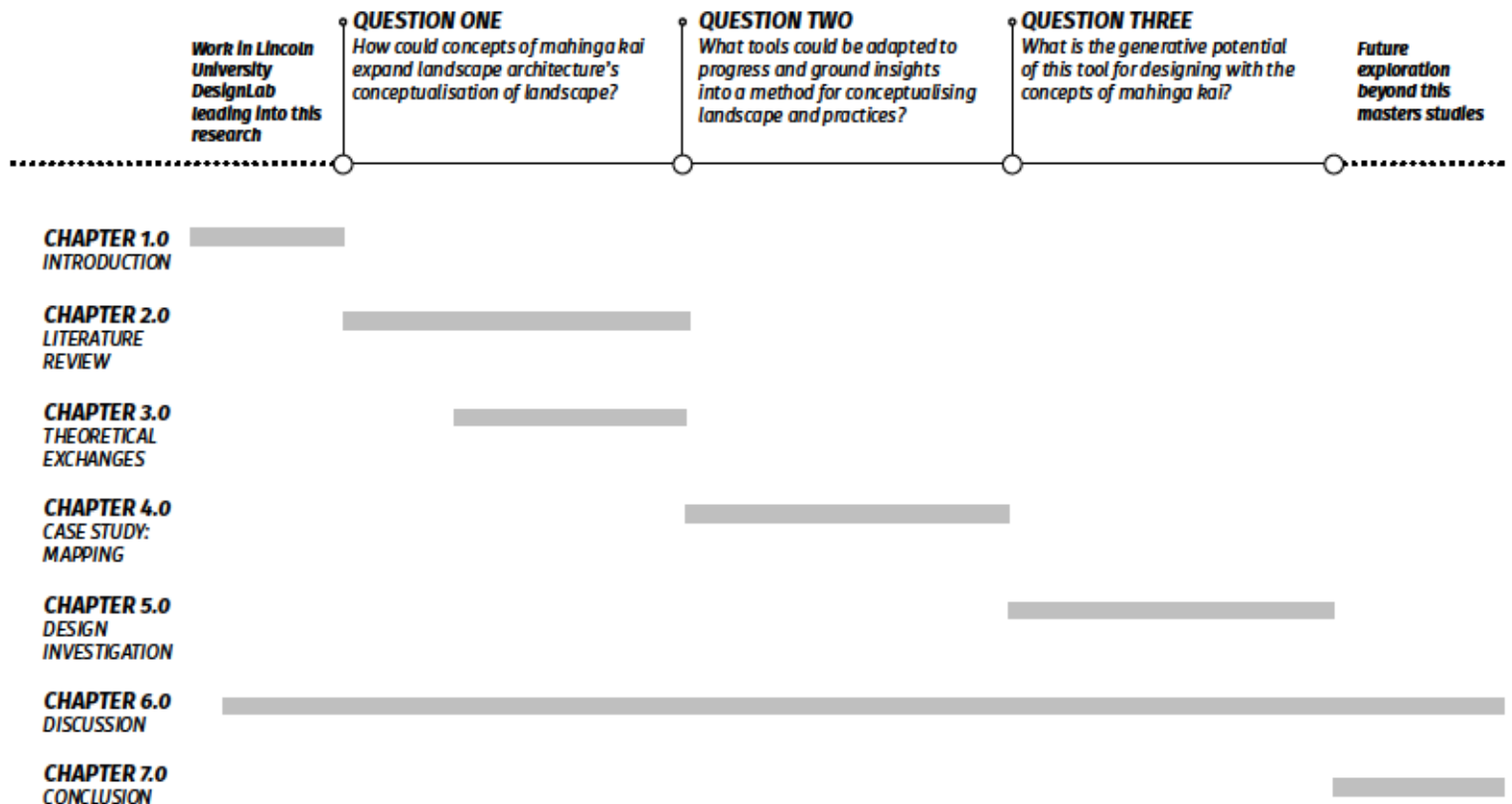


Figure 1. The key stages of the research process

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chapter two

LITERATURE REVIEW

A literature review has been undertaken to develop a basis of understanding around the concepts of mahinga kai. This has been carried out using the LibrarySearch engine on Lincoln University, by searching with a preliminary set of keywords including mahinga kai, kaitiakitanga, and landscape architecture. This phase begins by identifying and reviewing a set of readings that might be most relevant to landscape architecture's examination of mahinga kai.

2.1. Mahinga kai – reviewing a multi-dimensional conceptualisation

Panelli & Tipa regard mahinga kai as involving diverse understandings of the “simultaneous protection and use of resources” (2009: 459). Tipa and Nelson offers a summary for interpreting mahinga kai:

Mahinga kai literally means ‘food works’. It is an all inclusive term that encompasses the ability to access the resource, the site where gathering occurs, the act of gathering and using the resource, and the presence and good health of resources. Mahinga kai remains one of the cornerstone of Maori existence and culture because for many, survival was and is dependent upon knowledge of mahinga kai and the ability to gather resources from the land, waterbodies, and the sea (Tipa & Nelson, 2008).

Tipa and Panelli's invites an expansive and multi-dimensional conceptualisation of mahinga kai (2009). It entails an understanding beyond the harvesting of foods, and encompasses a rich set of layers that consider the sites, practices, values and many other aspects that hold significance to the concepts of mahinga kai. Figure 2 shows a multi-dimensional representation of mahinga kai as “a cultural idea and series of intersecting responsibilities and uses” by Tipa and Panelli. (2009: 459).

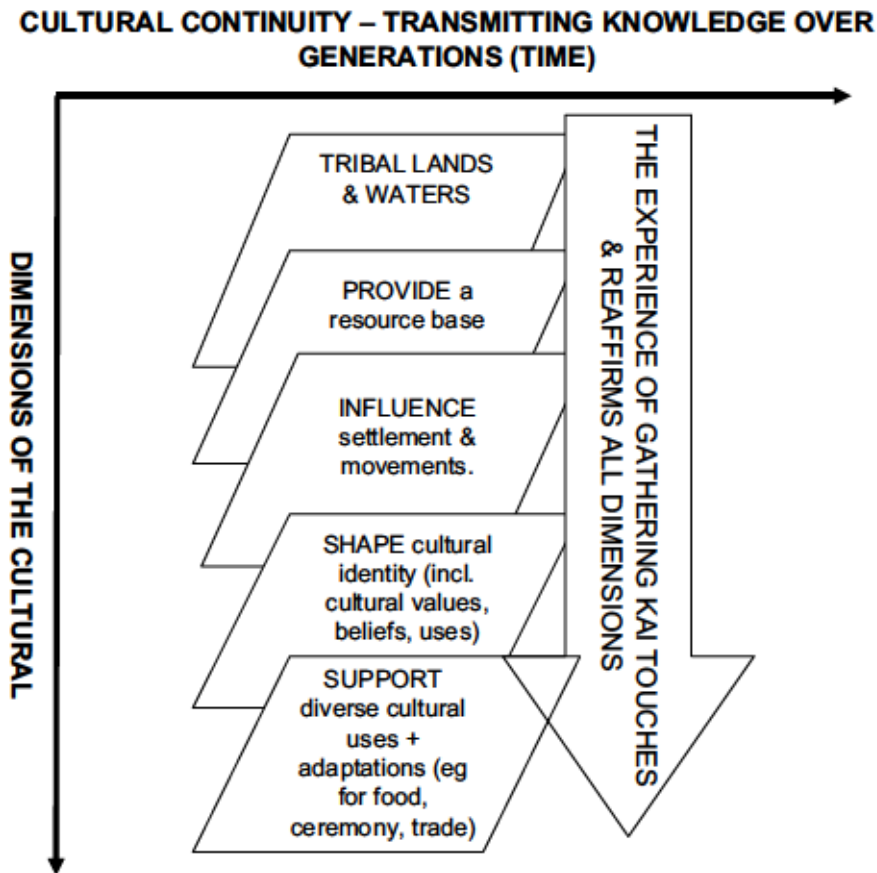


Figure 2. A multi-dimensional conceptualisation of mahinga kai by Tipa & Panelli – providing an “illustration of relations and responsibilities, between people, their takiwā (traditional territory), mahinga kai and wider daily life” (2015: 460)

This conceptualisation considers tribal lands and waters as ecological and cultural resource bases, from which diverse cultural uses and adaptation of knowledge are obtained during the course of people’s direct interactions with the environment. These interactions are mutual, and as Panelli and Tipa argue, result “in a living landscape of human and other interactions” (2009: 460). This illustration for conceptualising mahinga kai is comprehensive; it has opened the ‘door’ for this research, to considering a number of other interconnected concepts that are essential to understanding mahinga kai.

2.2. Reviewing interpretations of a Māori worldview and a series of interconnected concepts related to mahinga kai

The concepts of mahinga kai can be ‘multi-interpretive’ and expressed in many ways (Phillips, Jackson & Hakopa, 2016; Roberts et al, 1995) Roberts et al argue that there is no single perspective on any Māori concepts, as they differ from each group (1995). To this they suggest it is essential to “first served an appropriate apprenticeship in learning about the culture, its history, cosmogony, customs

and language" (Roberts et al, 1995: 8). It is to this suggestion I have sought to develop a basis of understanding of both a Māori worldview, and a series of interconnected concepts that associate with mahinga kai. This has been carried out by reviewing the literature around these complex ideas.

The values and practices of mahinga kai are underpinned by a Māori worldview and a series of interconnected concepts. Central to this worldview is its interwoven and multi-dimensional character in which all things are perceived as linked by whakapāpā (genealogy) as an environmental family, including animals, plants, waterbodies, mountains and other aspects of the natural world (Reid & Rout, 2016; Tipa & Nelson, 2008; Roberts et al, 1995). In connection to this is also the idea that all entities, both animate and inanimate beings, hold a mauri (life force), which is enhanced by the reciprocal interactions between people and nature in the course of every day life. (Roberts et al, 1995).

Further to whakapāpā and mauri, a series of interconnected concepts also underpins the values and expression of mahinga kai. These have been examined and discussed below.

Whanaungatanga

Whanaungatanga refers to "the relationships and kinships that are uplifted and enhanced through food gathering – kinships between people as well as the connections between people and place (Phillips et al, 2016: 69). However, not only can it refer to blood connection, but can "also extends to others to

whom one develops a close familial, friendship or reciprocal relationship" (Maori Dictionary, 2018). To this, Phillips et al examines the example of tītī (Sooty Shearwater) harvesting, in which the seasonal gathering and exchanging tied to this seabird connected most of Ngāi Tahu - the principal Māori iwi (tribe) of the southern region of Aotearoa New Zealand (2016). Such examples suggest present-day scenarios on landscape-drive practices that enable the connection of people with place, and with each other (Reid & Rout, 2016)

Kaitiakitanga

Kaitiakitanga refers to "the act of guardianship" (Roberts et al, 1995: 8). It is expressed as a set of responsibilities that underpins the reciprocal relationship between utilisation and conservation of resources (Roberts et al, 1995; Turner, Stephenson, Kirikiri, Dick & Moller, 2012). Roberts et al sees kaitiakitanga as lens to understanding a "Maori conservation ethic", which emphasises on a "kin-centric" worldview "in which humans and nature are not separate entities but related parts of a unified whole" (1995: 16). They argue that this conservation ethic "manifests itself by way of reciprocal utilitarianism" –suggesting that in this case protection of nature should be understood as game management, in that ecological species should be managed for both their own good and for the good also of the harvesters (Roberts et al, 1995: 16).

Manaakitanga

Turner et al refer to manaakitanga as the “sharing, generosity, caring for others”, which also “extends to hosting people from all cultures” (2012: 126). The practices of mahinga kai are essential in affording the act of manaakitanga, as food is central to the hosting culture of Maori and their ability in caring for its own people (Turner et al, 2012). Manaakitanga also revolves around the seasonal availability of food and other resources in places. For example providing seafood such as pāua (abalone) for those who live near the coast.

Mātauranga and tikanga

The concept of mātauranga and tikanga are closely related. In relation to mahinga kai mātauranga can be considered as holistic ecological knowledge that considers “everything is (as) seen to be interconnected”. Tikanga relates to “the particular way in which Maori general carry out their day-to-day existence” (Turner et al, 2012: 124-125). Turner et al argue that practices of mahinga kai can be considered as the practical expression of mātauranga and tikanga (2012). Ecological knowledge is gained through the direct engagement with the environment (Panelli & Tipu, 2009). It also directs the utilisation of resources, ensuring their long-term abundance. Mātauranga and tikanga are also evolved and passed down from generation to generation (Turner et al, 2012).

Summary

The interconnected concepts that have been examined here provide a lens to consider mahinga kai and the many layers that it expresses. These concepts are culturally complex, and are interrelated to many other concepts and values. Given the time constraints of this dissertation, a focus has been placed on examining concepts that might hold the strongest relevance to the designing of people-ecology interactions. For future landscape architecture research, there is a potential to explore these concepts in greater depth, and other possible concepts that associate with mahinga kai and beyond. A summary of the literature-based interpretations around these concepts is presented in table 1.

Reviewing the literature around interpretations of these concepts has led to insights of a reciprocal understanding of people and nature. These all suggest a positive role people could play as part of nature. Together these theoretical threads have guided my understanding into the concepts of mahinga kai. Given the cultural complexity of these concepts, how could landscape architecture better conceptualise them? What methods could be applied to examine them within the theoretical context of mahinga kai? How is landscape architecture currently incorporating these concepts in design?

A review of five theoretical concepts of mahinga kai that express a Māori worldview	
Whakapāpā [genealogy]	People are linked to all things in the natural world by whakapāpā (genealogy). Together humans and nature form a “environmental family” (Phillips et al, 2016; Roberts et al, (1995)
Whanaungatanga [kinship]	Practices of mahinga kai strengthen the bond and kin-ship ties between people, and the environment in ways that enable both to thrive and flourish (Phillips et al; 2016, Panelli & Tipa, 2009)
Kaitiakitanga [guardianship]	Practices of mahinga kai enable people to fulfill their role as kaitiaki (guardians) of the natural world. The “simultaneous protection and use of resources” enables them to both work and nurture ecological resources (Phillips et al, 2016; Panelli & Tipa, 2009; Turner et al, 2012; Roberts et al, 1995)
Manaakitanga [hospitality]	Mahinga kai enables inhabitants to host and look after their visitors. This emphasises on the values of reciprocity, between people and one another, and also with their environment (Panelli & Tipa, 2009; Turner et al, 2012)
Mātauranga [knowledge] and tikanga [customs]	Traditional ecological knowledge is continuously adapted, evolved and passed down from generation to generation as a result of people’s direct interactions with lands and waters (Phillips et al, 2016; Turner et al, 2012)

Table 1. A summary of the concepts related to mahinga kai – this has been derived from multiple readings, for considering a relational view of people as part of the natural world

2.3. Conceptualising mahinga kai as a series of interconnection concepts: exploring an approach that invites and affords multiple layers of creative interpretations

In order to explore the questions presented in the summary I have narrowed the review of literature around mahinga kai and landscape architecture. This has revealed a limited breadth of publications that covered both topics. While the concepts of mahinga kai have influenced the realm of resource management (Roberts et al, 1995; McKerchar, Bowers, Signal & Matoe, 2014; Memon & Kirk, 2012), its creative potential for landscape architecture could be explored more rigorously. To this I

have identified and considered a number of guidelines, principles and best practice that landscape architecture has incorporated in the design of ecological landscapes. Many of these seek to provide guidance on how ecological restoration could be designed in order to enable traditional practices of mahinga kai to take place. Figure 3 shows a exemplar diagram that is presented in the 'Draft Ōtākaro/Avon River Corridor Regeneration Plan' (2016).

This diagram has been developed in response to one of the plan's objectives – "Create a restored native habitat with good quality water so there is an abundant source of mahinga kai, birdlife and native species" (Regenerate Christchurch, 2016: 24). The concepts have been presented here as a set of design principles.

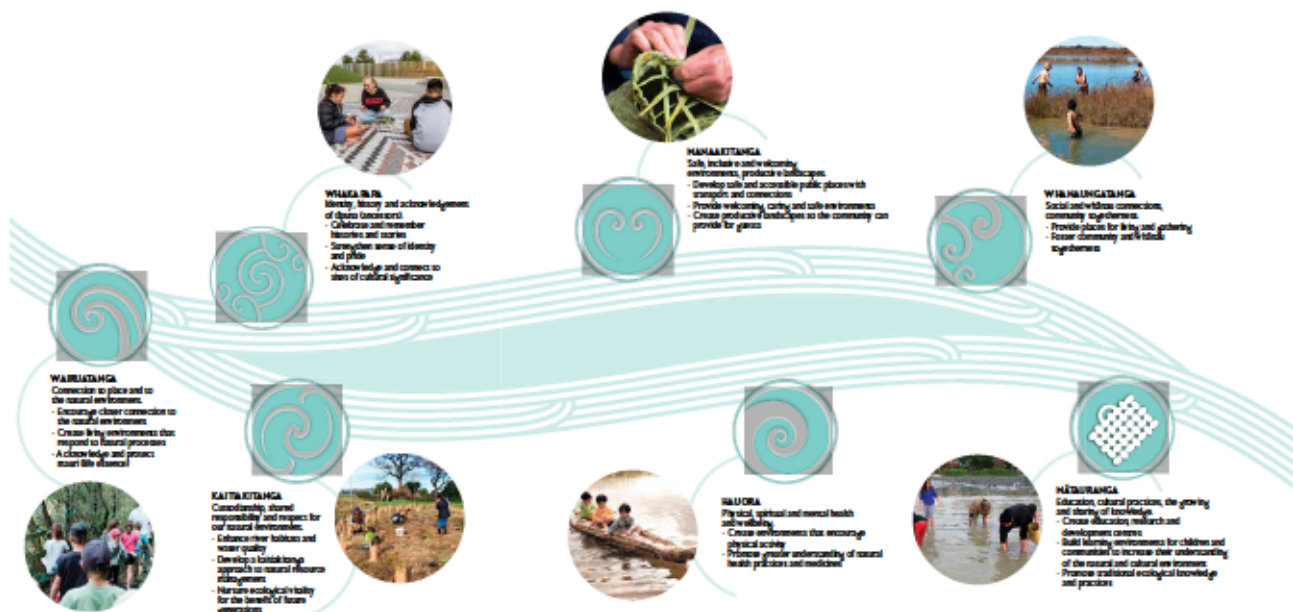


Figure 3. Diagram used in the 'Draft Ōtākaro/Avon River Corridor Regeneration Plan' illustrating the concepts of mahinga kai – showing design-relevant principles for guiding future design along the river. Image: Regenerate Christchurch (2016)

The concept of 'Kaitiakitanga' in this diagram suggests to 'enhance river habitats and water quality', yet it is unclear on what forms this could take. Further, the object suggests a one-way relationship between restoration and utilisation of resources, as opposed to encompassing the act of restoration as also part of the expansive practices of mahinga kai. How could these concepts be conceptualised, such that they could build possibility and expand the imaginative scope of landscape architecture?

On questioning the potential of these documents, it has revealed an opportunity to extend the discipline's current approaches in considering the concepts of mahinga kai. Could the multi-interpretive characteristic of mahinga kai expand possibility and imaginative scope of landscape architecture, beyond guiding decision-making? Could the concepts of mahinga kai invite landscape architecture to creatively interpret their richness and complexity, such that places can be designed with a diverse set of practices that engage people to nurture ecology? As Māori Marsden writes, "The route to Māoritanga through abstract interpretation is a dead end. The way can only be through a passionate, subjective approach" (1975: 191). It is within this perspective I have sought to explore the potential of adapting a landscape architectural concept in considering and interpreting the concepts of mahinga kai.

2.4. Andscapes: exploring the potential to expand landscape architecture's conceptualisation of mahinga kai and its interrelated concepts, practices, values and more

Martin Prominski argues that landscape architecture has to abandon the traditionally dualistic view of seeing human influence as external to nature (see Figure 4). To this, he proposes the term 'andscape' for understanding concepts that sees nature and culture as one (2017).

Prominski develops 'andscape' by adopting the perspective of two Japanese concepts – Imanishi's *seibutsu no sekei* (world of living things) and Watsuji's *fudo* (milieu). (2017)

Seibutsu no sekei, proposed by Japanese biologist Kinji Imanishi, perceives the "world of living things as a unified whole of discrete living things, such as humans, animals, or plants" (Imanishi, 2002, cited in Prominski, 2014: 9). It considers all living things as a part of the environment. Imanishi proposes the concept of "field of living" as a replacement for "environment". (Imanishi, 2002; cited in Prominski, 2014: 9). Imanishi also draws to the relationships between food and living things, suggesting it is "not one of biology or taxonomy, but of direct affinity of body to the living things" (Imanishi, 2002; cited in Prominski, 2014: 9)

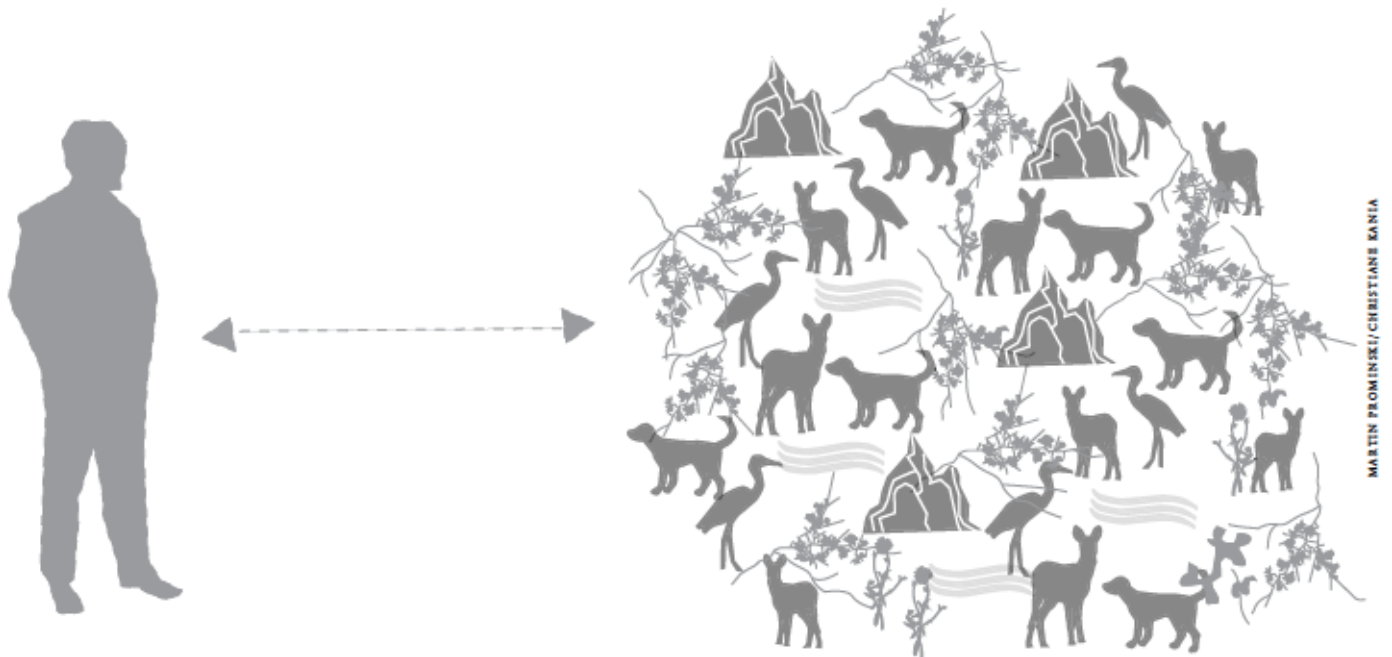


Figure 4. Representation of the traditional concept of nature and culture in the West: human influence as external to nature Image: Prominski (2014)

Fudo by Tetsuro Watsuji (1935) on the other hand, rejects the traditional understanding of ecology that makes environment a object of study. Watsuji argues such view detaches nature as objects from humans (Watsuji, 1988). Instead, Watsuji proposes something Berque translates as 'milieu'. To this Prominski writes, "Humans, animals, plants, stones, rain, etc. exist in a certain milieu, not the objects themselves but their relationships are the foundation of a milieu. Human beings, and all other things, are the producers and, at the same time, the products of a specific milieu" (Watsuji, 1988; cited in Prominski, 2014: 11). He considers that people and nature together create "a continuously changing milieu", and their relationships "are the foundations and drivers of our lives, and these relations happen in a milieu" (Watsuji, 1988; cited in Prominski, 2014: 11).

Prominski's discussion on these concepts seek to open landscape architecture to seeing the environment as a web of intricate relationships, in which nature and people are both a dynamic part of. Figure 5 shows a diagram developed by Prominski depicting the "world of living things" (*seibutsu no sekei*) by Imanishi. He describes this as a "unitary concept" that sees all living things "are all part of a dynamic web of relations; an exclusive role for humans is not possible. The world of living things is structured by sociality" (Prominski, 2014: 8).

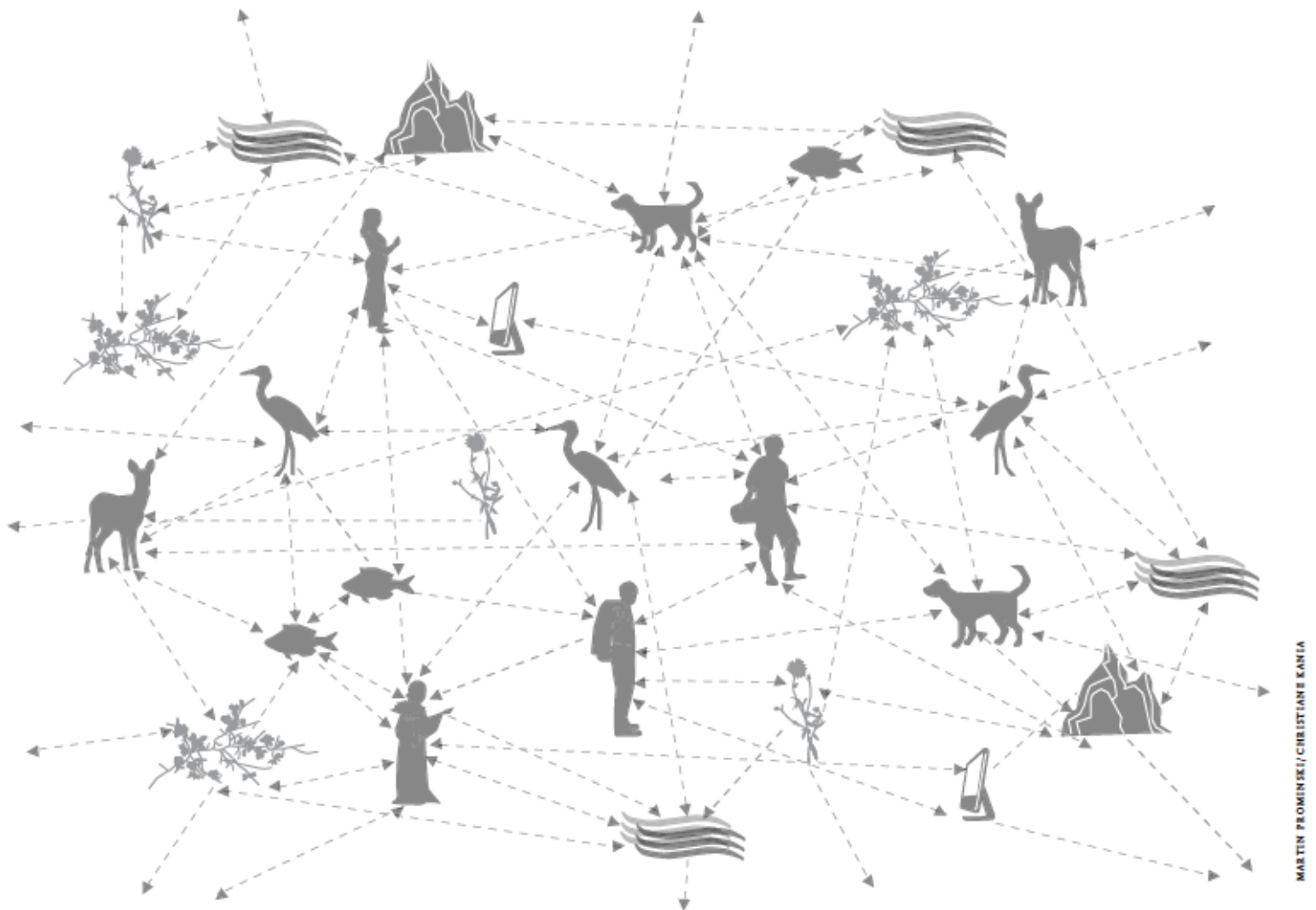


Figure 5. Diagram depicting "the world of living things (seibutsu no sekei) by Imanishi" – this illustrates a web of intricate interrelationships between people, and all living and non-living things in an environment. Image: Prominski (2014)

Prominski's depiction of "the world of living things (seibutsu no sekei) by Imanishi" shares strong connections with the concepts of mahinga kai. They both share a relational view on people and nature. Also, they both emphasise on interrelationships, as opposed to seeing the environment as a resource in which people either extract or protect. Figure 6 shows an adaptation of Prominski's diagram that explores how concepts of mahinga kai could be conceptualised in a similar approach.

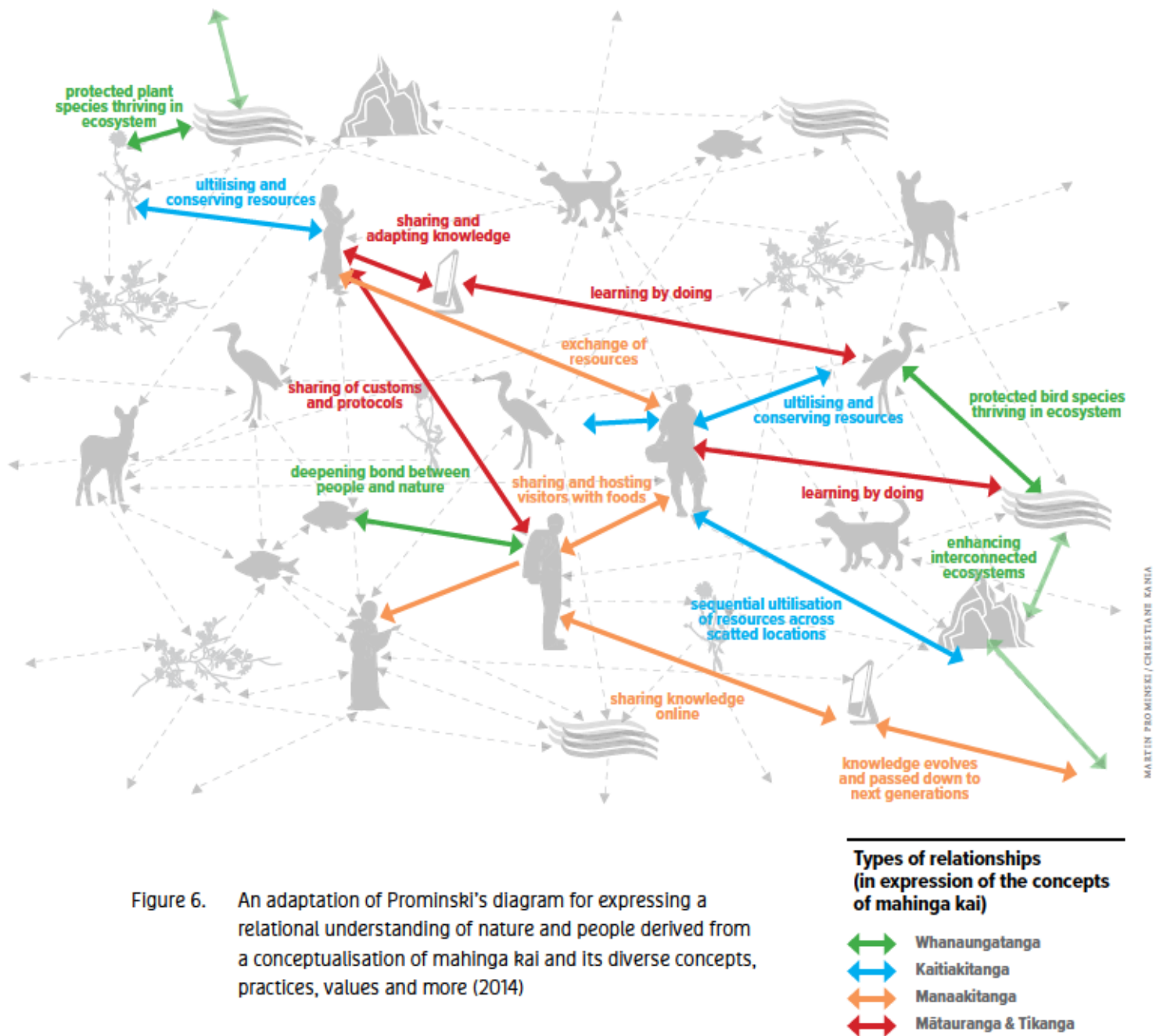


Figure 6. An adaptation of Prominski's diagram for expressing a relational understanding of nature and people derived from a conceptualisation of mahinga kai and its diverse concepts, practices, values and more (2014)

In figure 6, the series of concepts discussed and summarised in table 1 have been explored as a diagrammatic framework for teasing out Panelli and Tipa's conceptualisation of mahinga kai as a set of interrelationships (2009). In this, the concept of whakapāpā could be interpreted to encompass the diagram as

a whole, as all things in it are interconnected. The concept of kaitiakitanga could be regarded as a set of key interactions that underpins people's relationships with nature. These interactions, such as 'utilising and conserving resources' of bird, fish and plant species lead to other practices that could be expressive

of concepts such as whanaungatanga and manaakitanga. For example, by 'utilising and conserving resources', the bird species are protected and can be 'thriving in ecosystem'. These interrelationships also extend beyond this field. For instance, the transmission of mātauranga begin as people harvest the resource, and progresses as it is shared via the Internet as a video.

This framework for conceptualising the concepts of mahinga kai seeks to invite and afford multiple layers of interpretations, as opposed to providing 'the' definition. It enables a relational view of the environment, nature, people and practices. This approach could

also be expanded to include other concepts that might relate to the practices of mahinga kai, which might not have been considered here. This framework could also allow others to overlay other layers of experience, interpretation and knowledge. Such a diagram could be useful for landscape architecture, particularly to consider mahinga kai with a greater depth and breadth, beyond food and harvest, but also encompasses a series of intersecting practices, values, principles and many other aspects. For this research, the question now is how could conceptualisation of mahinga kai also expand landscape architecture's conceptualisation of landscape?

chapter three

THEORETICAL EXCHANGES

As explored in the previous chapter, Panelli and Tipa's conceptualisation of mahinga kai invites a relational understanding of landscape and practices. They discuss the coming together of the sites and practices of mahinga kai resulting "a living landscape of human and other interactions" (Panelli & Tipa, 2009: 460). In order to tease out the potential of this conceptualisation for landscape architecture, I have sought to examine the literature around the concepts of mahinga kai that emphasise on 'landscape' and 'interactions'.

3.1. Examining the concepts of mahinga kai beside a 'dwelling perspective' of landscape

Brian Murton in his conceptualisation of mahinga kai (2012) applies the concept with that of Ingold terms as 'taskscape' (1993). Drawing from Ingold's work, Murton considers sites of mahinga kai as "...the tangible result of the Māori body/self's immersion in place as it engages the environment during the course of normal everyday life" (2012: 99). This reciprocal understanding of site and practice shares connections with Tipa and Panelli's

view of mahinga kai as generative of "a living landscape of human and other interactions" (2009: 460). This suggests a direct connection to Ingold's 'dwelling perspective' in understanding landscape (1993).

Ingold, in his influential article 'Temporality of The Landscape' proposes a 'dwelling perspective' to conceptualising the landscape (1993). In this Ingold argues that a landscape "arises from the activities and practical engagement of those who dwell within it" (Ingold, 1993; cited in Prince, 2018: 67). Ingold considers landscape as "an array of related features", and the taskscape as "an array of related activities" (1993: 160). They are regarded as complex, inseparable, and can be generative of one another over time (Ingold, 1993). The forms of landscape and taskscape, as Ingold considers, are both generated in movement (1993: 162). To this, every object in the landscape can be "regarded as a 'collapsed act'", or a crystallisation of a collection of activities. The landscape as a whole can therefore be "understood as the taskscape in its embodied form: a pattern of activities collapsed into an array of features" (1993: 162). This process however is not one of inscription, in which a design is imposed upon a pre-given

context. Instead, Ingold considers it a process of incorporation, which implies “the forms of the landscape arise alongside those of the taskscape, within the same current of activity” (1993: 162). In this neither the landscape nor the activities that shapes it into a place for dwelling can be pre-configured. As Abbott argues, “people’s experiences are directly shaped by landscape, just as the individual and collective activities of people directly shape a landscape’s qualities” (2011: 24). This conceptualisation of site and practice share direct connections with Murton (2012) and Phillips et al’s (2016) interpretation of mahinga kai – in that the site is both the result, and an enabler of practices that is generative of the site itself.

From here, the site can be understood as parts that together make up the landscape as a whole; practices on the other hand make up the taskscape as a whole.

3.1.1. The temporality of landscape – exploring how practice could give forms to a site

For Ingold, “the temporality of the taskscape is essentially social”. He considers people who engage in their everyday activities, also attend to each another (1993: 159). This notion of temporality implies a “cultural landscape [that] evolves over time through the rhythms of everyday life” (Prince, 2018: 68). It is however not just one cycle or rhythm, but “a complex interweaving of very many concurrent cycles” that resonate between humans and other living things, and also rhythmic phenomena such as ocean tides (1993: 160). Prince provides

an example, “people extract resources through time in different creative manners, build and refashion structures, form institutions, and hold bonds of different nature and strength, in relation to their material place and its other inhabitants, human and non-human alike” (2018: 67).

It is within this perspective mahinga kai could also entail a social-ecological understanding of temporality. As Panelli and Tipa argue, diverse activities associated with the harvesting, preparing and sharing of resources provide learning opportunities for children at a young age. Passed down by the extended whānau (family), practical skills and knowledge are obtained and put into practice through “direct interaction with tribal lands and waters” (Tipa & Panelli, 2009: 460). Seasonal changes are read as ecological signs, which inform future activities in working resources. Over time the knowledge and practices can adapt and evolve, and “accommodated contemporary elements” in response to changes in the environment and society. These can in turn be adopted and developed into place-based mechanisms for ensuring the ecosystems can continue to sustain the practices (Tipa & Panelli, 2009; Turner et al, 2012). The mutual attentive engagement between people and the endemic biodiversity in their environment, as Tipa and Panelli argue, result in “a living landscape of human and other interactions” over time (2009: 460).

Drawing from these interrelations, mahinga kai implies an understanding of site that is generated as the result of a dynamic web

of interlocking social-cultural and ecological cycles and rhythms. *Thus the practices that make up the taskscape relate to the time-based interactivities between people and nature, which together shape the site into a place for dwelling.* Socially, the temporality of the site is tied to the people's interaction within the ecosystems, which can be regarded as spanning across generations and passing between life stages.

3.1.2. The instrumentality of landscape – exploring how a site could shape practices

Landscape, as Ingold argues, cannot be understood as “given ready-made”, but rather a “living process; it makes men, it is made by them” (Ingis, 1977: 489, as cited in Ingold, 1993: 162). As a space for dwelling, landscape engages its inhabitants during the course of their every-day practices, who in turn shape landscape into a space for dwelling (Ingold, 1993). Ingold argues neither landscapes nor the activities can be preconfigured, for the landscape is “never complete: neither built or unbuilt, it is permanently under construction”, as the activities that give forms to it are also unending (1993: 162). Landscape cannot be regarded as a predecessor to the practices of people. Rather, as Abbott argues, “both the qualities of a landscape and qualities of a person are mutually formed out” (2015: 35) of “the very activities, of inhabiting the land, that both bring places into being and constitute persons as of those places, as local” (Ingold & Kurttila, 2000: 185, as cited in Abbott, 2015: 35). It is within this reciprocal relationship Abbott suggests an “instrumental” quality

to landscape. He considers understanding instrumentality as “a device” for landscape architecture, “to increase a site’s expressive potential” in shaping people’s behaviours (2015: 35).

The notion that a landscape’s instrumentality can be ‘drawn out’ to mediate human actions share direct connections with Panelli and Tipa’s conceptualisation of mahinga kai (2009). Panelli and Tipa consider the diverse localisation and qualities of endemic nature, including plant, bird and fish species, have required practices of mahinga kai to be adaptive, flexible and innovative (2009). Challenges present opportunities to innovate, especially in gathering and preservation technologies (Anderson, 1998, cited in Panelli & Tipa, 2009). For instance, “sequential utilisation of a variety of resources that occurred in widely scattered localities” can be considered a unique characteristics of the practices of mahinga kai (Beattie, 1994, cited in Panelli & Tipa, 2009: 459). It is within these characteristics that new technologies and management approaches have been continuously adopted as kaitiakitanga strategies for sustainably managing the utilisation of resources (Panelli & Tipa, 2009; Roberts et al, 1995). Thus the experience of making a living is significant to becoming an inhabitant of a place (Murton, 2012). For It is through inhabiting the lands and waters, that bring the qualities of a landscape to engage and shape a pattern of skilled practices, enabling and requiring it to adapt and evolve. Through this process, people have also become connected to the landscape. Hence in contemporary society

mahinga kai remains important as it continues to provide opportunities for “whanaungatanga and knowledge sharing” (Panelli & Tipa, 2009: 459). This would also resonate strongly with an opportunity presented by Abbott, to enable “ways it [landscape] enables people and ecology to interact, and “to design behaviors, tools, technologies, devices, and strategies where endemic biodiversity and ecological resilience are nurtured” (2015: 38).

Questioning the landscape-led ideas around these characteristics of mahinga kai has revealed an *understanding of site as a device that enables mutually attentive engagement between people and endemic nature, through which a landscape can be materially shaped*. This resonates with Phillips et al understanding of mahinga kai as sites that denote work (Phillips et al, 2016). It is within this understanding of the site landscape architecture should consider “not so much from what we do to a landscape, but rather by what we enable a landscape to do to us” (Abbott, 2015: 35).

3.1.3. The spatiality of landscape – exploring the boundary of site in relation to its practices

Ingold proposes looking at a landscape’s spatiality in relation to the taskscape. He argues that the boundary of a landscape only exists “in relation to the activities of the people for whom it is recognised or experienced as such”, and that “no feature of the landscape is, of itself, a boundary” (1995: 156). Each place should be regarded as a part within the landscape, which “embodies the whole at a particular nexus within it, and in this respect is different from every other.” (1993: 155). Ingold adds, the “landscape is the world as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them” (Ingold, 1993: 156).

It is within this notion the sites of mahinga kai can be considered as bases that influences the movement of people, both traditionally and in contemporary society (Panelli & Tipa, 2009). For instance, place with an abundance of resources have shape how people would “move across the landscape accessing the varying plant, animal, marine, fibre and stone resources they needed for sustenance, cultural practices and exchange” (Anderson, 1998, cited in Panelli & Tipa, 2009: 459). In contemporary societies, people have continued to develop diverse associations with place and practice of mahinga kai (Panelli and Tipa, 2009; Turner et al, 2012; Reid & Rout, 2015). Panelli and Tipa illustrate these with a typology categorising six types of associations with foods and mahinga kai (Figure 7).

Type A and B refer to those whose food choices and ways of gathering food are not bound by “tikanga and kawa (protocols and practices) that governs cultural practices such as mahinga kai” (Panelli & Tipa, 2009: 460). Types C to F reflect a range of associations that exercise their rights and responsibilities in gathering and managing the utilisation of resources within their takiwā. These associations overlap, as a person might engage in a different types of mahinga

kai practices. Contemporary marketing programmes such as Ahikā Kai , which will be explored in greater depth in chapter 4, have also accentuated this relational understanding on how people have adapted their practices in response to new spatial association with place. As such, both the rights and responsibilities that come from working the resources can be extended beyond the locale of sites to connect with more people (McKerchar et al, 2015).

Type	Type	Type	Type	Type	Type
A	B	C	D	E	F
Commercial and convenience foods	Fishers Hunters Gardeners	Mahinga kai	Manawhenua Mahinga kai	Ahi kaa Manawhenua Mahinga kai	Wahi whenua Ahi kaa Manawhenua Mahinga kai

Figure 7. Diverse associations with foods and mahinga kai (Panelli and Tipa, 2009: 461) – illustrating how practices of mahinga kai take place in a contemporary setting

3.2. Theoretical exchanges: key insights

By examining the interrelationships between concepts of mahinga kai and Ingold's work, it has led to a number of key insights on how the landscape and 'site' could be conceptualised. Table 1 summarised these insights.

Each horizontal column can be read from left to right. First, Ingold's conceptualisation of the landscape and taskscape are summarised. The next column then identifies key theoretical interpretations of mahinga kai as sites and practices from the literature review process. Both of these understandings are then analysed and exchanged by using relevant examples of mahinga kai practices from Panelli and Tipa's paper (2009). From this, a 'final' insight' has been generated.

In analysing the table, concepts of mahinga kai appear to share direct connections to Ingold's understanding of landscape. For example, Phillips et al considers mahinga kai as sites that denote work (2012), which relates strongly to Ingold's view on regarding landscape as places that engages people in their practices of dwelling (Ingold, 1993).

To explore these connections in depth, I have adapted Panelli and Tipa's diagrammatic conceptualisation of mahinga kai. Figure 8 draws from the summary of table 1 to explore this.

INGOLD'S CONCEPTUALISATION OF THE LANDSCAPE AND TASKSCAPE	THEORETICAL INTERPRETATIONS OF MAHINGA KAI AS SITE AND PRACTICE	PRACTICES OF MAHINGA KAI IN RELATION TO SITE AND PRACTICE (Panelli & Tipa, 2009)	KEY INSIGHTS GENERATED FROM THEORETICAL EXCHANGES
1.1 Temporality The taskscape is comprised of "a series of interlocking (cultural-ecological) cycles, which build themselves into the forms of the landscape..." (Ingold, 1993: 157)	1.2 Practice generating site Site can be understood as the "tangible result" of people's practical engagement with its environment during the course of everyday life (Murton, 2012)	1.3 Practices of mahinga kai providing opportunities for whanaungatanga and knowledge sharing People adapt their skills by directing interacting with nature and reading ecological signs. These have been passed down to next generations as knowledge (Panelli & Tipa, 2009)	1.4 The practices that make up the taskscape include the time-based interactions between people and endemic nature, which together shape the site into a place for dwelling
2.1 Instrumentality Landscape as a space for dwelling engages its inhabitants during the course of their every-day practices, which in turn shape landscape into a space for dwelling (Ingold, 1993).	2.2 Site generating practice Site has the capacity of "denoting work" (Phillips et al, 2012)	2.3 Lands and waters as resource bases influencing practices of mahinga kai The scattered location and qualities of natural resource bases has enabled the sequential utilisation and movement of people (Panelli & Tipa, 2009)	2.4 Site is a device that can engage people with the instrumental qualities of nature, in ways that allow practices and knowledge to continuously adapt and evolve as they in turn shape, and are shaped by the landscape
3.1 Spatiality The boundary of a landscape only exists "in relation to the activities of the people for whom it is recognised or experienced as such", and that "no feature of the landscape is, of itself, a boundary" (Ingold, 1995: 156).	3.2 Practice as a site's boundaries Site as resource base influences the movement and settlement pattern in journeying from places to places to access resources (Panelli & Tipa, 2009: 459).	3.3 Contemporary mahinga kai practices occur within and beyond tribal lands and waters People develop diverse associations with practices of mahinga kai, through different levels of place-based connections (Panelli & Tipa, 2009)	3.4 Place-based connections are embodied in the practices of mahinga kai, including exchanges of knowledge and resources that extend beyond the spatial confine of the site

Table 2. A summary of design-relevant insights and potential of an expansive understanding of site and practice – showing a number of synthesised insights for conceptualising landscape and 'site'

Figure 8 divides each dimension into either a 'landscape feature' or a 'taskscape feature'. 'Tribal lands and waters' and 'provide a resource base' are regarded as landscape features, while 'influence settlements and movements', 'shape cultural identity' and 'support diverse cultural uses and adaptations' are considered as taskscape features. The arrows illustrate the dynamic interrelationships between these features. For instance, tribal lands and waters provide a resource base that influences settlement and movements, and in return the movements shape the lands and waters (see blue arrows/spatiality in figure 8). In this, the boundary between landscape and taskscape, 'site' and practice is blurred. The 'site' is not restricted to 'tribal lands and waters' and 'resource base', but rather it encompasses the "intersecting practices and responsibilities" of mahinga kai (Panelli & Tipa, 2009).

The concepts of mahinga kai foreground the taskscape. A series of interconnected concepts including kaitiakitanga, manaakitanga, whanaungatanga, mātauranga and tikanga underpin the activities, performances and rituals that make up the taskscape. People develop and express their relationships with endemic nature by participating in the taskscape – in the working, nurturing learning,

adapting and sharing of skills, knowledge and natural resources, over generations and across places. The temporality and spatiality of these practices are social-ecological. This rich set of practices together result in "a living landscape of human and other interactions" (Panelli & Tipa, 2009: 460). Thus the landscape could only be conceptualised in relation to the taskscape; and a designing of 'site' is a designing of practices, interrelationships and processes (Abbott, 2015; Corner, 2014; Abbott et al, 2018).

For landscape architecture, especially in New Zealand, working with these concepts could be full of creative potential. This research has sought to explore this potential, while embracing the cultural complexity of the concepts of mahinga kai. In doing so, it has led to insights of a reciprocal and processual conceptualisation of landscape and 'site'. Yet these insights remain theoretically abstract, both for landscape architecture and for my future work beyond this masters studies. Reflecting on this challenge, the opportunity presented here is how to contextualise and ground these insights, so that they could become available for generating design possibilities. To investigate this opportunity, I have undertaken a case study approach in the next chapter.

1.1 Temporality - Taskscape shaping Landscape

The taskscape is comprised of "a series of interlocking (cultural-ecological) cycles, which build themselves into the forms of the landscape..." (Ingold, 1993: 157)

2.1 Instrumentality - Landscape shaping Taskscape

Landscape as a space for dwelling engages its inhabitants during the course of their every-day practices, which in turn shape landscape into a space for dwelling (Ingold, 1993).

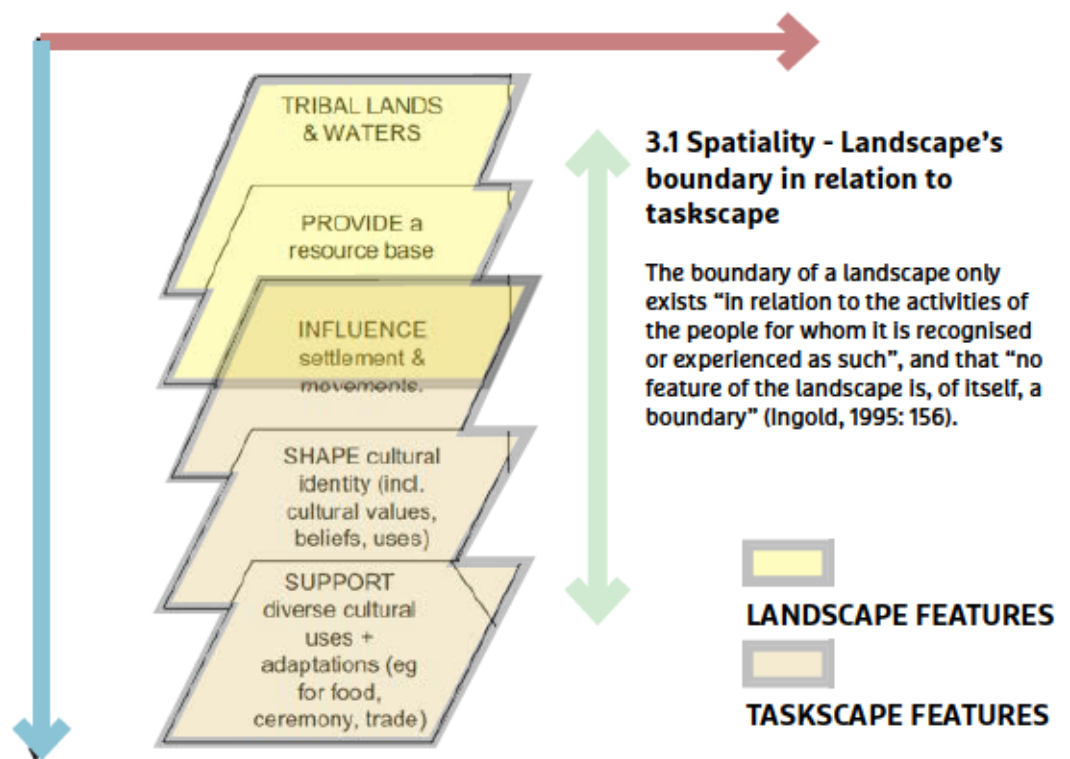


Figure 8. An adaptation to Panelli and Tupa's conceptualisation of mahinga kai (2009: 460) – overlaying Ingold's conceptualisation of landscape and taskscape from table 1 to investigate the connections between the two sets of concepts on landscape and 'site'

chapter four

CASE STUDY

This chapter has sought to contextualise and progress the insights generated in previous phase. To this, a case study approach has been undertaken. As Swaffield argues, case studies are “ideally suited to the investigation of complex phenomena such as designed landscape” (2016: 125). He considers the use of cases as research tools, which could “sharpen the way landscape architecture researchers shape and answer their research questions”, as opposed to being exemplars (Swaffield, 2016: 125). Swaffield considers case studies to be well suited to “questions of an exploratory nature”, which relates strongly to the purpose of this research (2016: 135).

To this, a case study that relates to the concepts and practices of mahinga kai has been sought. An example has occurred throughout a number of key readings that have been explored in previous chapters of this research, which is the tītī harvest or ‘muttonbirding’ (*Puffinus griseus*) by Rakiura Māori (Panelli & Tipa, 2009; Reid & Rout, 2015; Moller, Phillips et al, 2016).

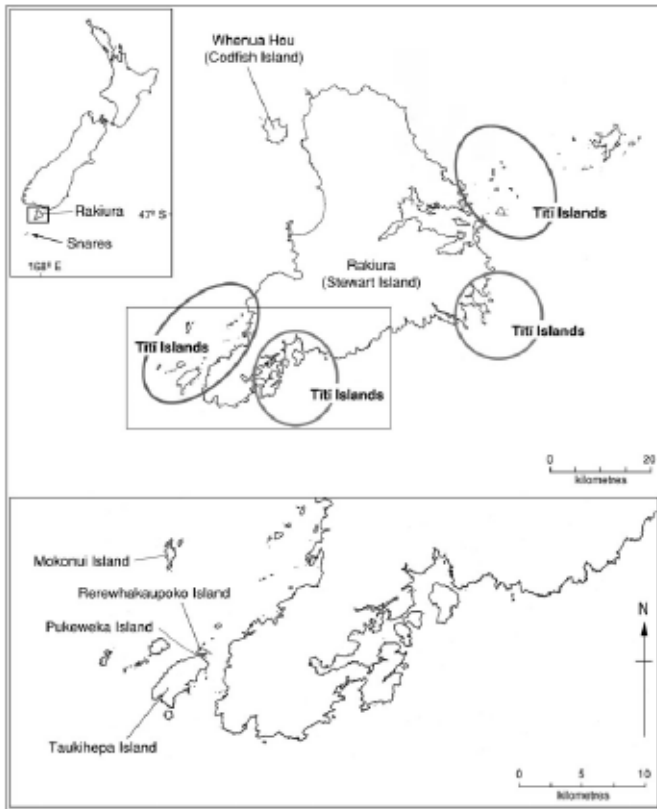


Figure 9. Map of the Titi Islands surrounding Rakiura, Stewart Island off the South Island of Aotearoa New Zealand. Image: Olkonos (n.d.)

4.1. Titi Islands and titi harvesting: a case study that entails a rich interrelationship between landscape and taskscape, site and practice of mahinga kai

The annual harvest of titi, on islands adjacent to Rakiura, Stewart Island (see figure 9), “is a defining cultural activity for Rakiura Māori”, building group identity and social cohesion” (Clucas, Moller, Bragg, Fletcher, Lyver & Newman, 2012). It is the only remaining large-scale customary uses of endemic wildlife in New Zealand (Clucas et al, 2012; Moller & Kitson, 2008). As a set of intergenerational practices, it has evolved and adapted to changing environmental and society challenges (Moller et al, 2009). The ecological knowledge people gained through direct harvesting has been passed down from generations to generations largely through oral traditions (Lyver 2002; Clucas et al, 2004). The maintenance and transmission of this knowledge involves a rich set of exchanges. Every year, maturing titi chicks have been ‘bringing’ people to Titi islands in March in preparation for the harvesting that takes place in April and May (Moller et al, 2009). The harvesting is timed and divided into two stages in response to the life stages of the titi: “nanao (day), when chicks are extracted from their burrows; and rama (night), when they are caught above ground under torchlight (see figure 12)” (Lyver, Newman & Rakiura Titi Islands Administering Body, 2019). The birds are “either sold, bartered or used for home consumption (see figure 13) or important communal events like weddings, funerals or cultural commemorations and hui (gatherings) at marae” (Moller et al, 2009: 214). These

Figure 10. A number of Tītī Islands off the south-west coast of Rakiura, Stewart Island, including Putauhina and Pohowaitai. Image: Tony Jewell (2005)



Figure 11. Tītī chick in burrow. Motunau Island. Image: Anita Spencer (2005)



Figure 12. A birder pulls a tītī chick from its burrow during the rama (night) phase. The season of harvest when birds could be taken is strictly regulated, in order to ensure the resource can sustain future generations. Image: J. O'Brien (n.d.)





Figure 13. Tītī with Maori potatoes and spinach. Image: Serge Crottaz (2009)



Figure 14. Tītī being plucked on the manu (birding grounds). Image: J. O'Brien (n.d.)



Figure 15. Protecting the tītī population by using traps to control impact from predation by rodents. Image: Te Rūnanga o Ngāi Tahu

Figure 16. Helicopter and rodent detection dogs on a small island off the east coast of Stewart Island presence of rats. Image: detectorgadget (2016)

practices and traditions also differ across the different islands (Moller et al, 2009). To ensure a continuation of these practices, a set of kaitiakitanga practices for safeguarding the tītī population have been adapted and developed as part of a process in “knowing by doing” (Moller et al, 2009). Photos illustrating rodent eradication is shown in figure 15 and 16.

These practices guide the specific harvest practices, and influence the learning processes both in the past, and in the future (Moller et al, 2009). Contemporary innovation of technology, bird population management and marketing has also been developed to enable these practices (Lyver & Moller, 1999). A key example is the marketing programme of Ahikā Kai programme developed by Te Rūnanga o Ngāi

– which is “a simple and innovative business model for Ngāi Tahu food producers” that “provides an avenue for small and medium-sized Ngāi Tahu businesses to sell food products into an established market under the Tahu Kai brand” (Te Rūnanga o Ngāi Tahu, 2019). One of its core values is in connecting ‘outsiders’ (consumers) with ‘inhabitants’ (harvesters), through the exchange of stories (Reid & Rout, 2015).

Raikura tītī harvest involves more than the harvesting of foods, and encompasses a set of diverse practices, knowledge, traditions and interrelationships that underpin the harvesting, preparing, sharing, learning, exchange and adapting of these resources and knowledge. Together these are interwoven within the

Concept	Kaitiakitanga strategies and practices
Protection of habitat	Access to harvest areas restricted to specific iwi or individuals within an iwi and strictly enforced Fragile or sensitive habitat areas designated as <i>tapu</i> (sacred, access banned) Allocation of harvest areas and strategies is flexible and can be matched to observed population fluctuations Cutting of live trees for firewood prohibited Tracks carefully used and maintained to minimise disturbance Special care of trees used by tītī as take-off points for flying
Protection of breeding burrows	Digging minimised to avoid damage to breeding habitat Careful restoration of any area disturbed by digging to access a chick in a long burrow Burrow entrances cleared of leaves and twigs to ensure ready access for breeding birds
Reducing impact of harvest for tītī populations	Harvest of <i>kaiaka</i> (adult birds) strictly forbidden, to protect the future breeding population Harvest timed to minimise disturbance, interference and desertion of young adults <i>Rāhui</i> (temporary access ban) and <i>tapu</i> used to protect specific stages within the lifecycle and breeding period Access to islands restricted until the late chick stage of the lifecycle Appropriate harvest techniques used to avoid capture of non-target life stages
Provision of refugia and escape from harvest	Tapu used to restrict or prevent access and harvest of specific areas or islands Harvest restricted to designated periods
Minimisation of waste	Restriction of harvest to what is needed and can be processed effectively Harvest techniques considered to risk wastage are banned

Figure 17. Summary of kaitiakitanga strategies and practices used by Raikura Māori to safeguard tītī populations. Image: Moller et al (2009: 245)

ecological and cyclical fabrics of the islands. The cultural traditions tītī harvest has not only shaped the past, but have also guided the adaptation of these practices in response to contemporary challenges. It is through the utilisation of tītī and other resources both people and the ecosystems could be sustained. In this both the landscape and taskscape Tītī islands and tītī harvest are interwoven. Neither the islands, nor the knowledge, traditions and rituals of tītī harvest are pre-configured; rather, they are both formed out of the mutual engagement between the people and the endemic nature on the islands. The 'site' encompasses both the islands, and also the intricate web of interrelationships, processes and cycles that connect people to these places.

From an ecological perspective, studying these practices provides a depth of understanding regarding how traditional ecological knowledge could be communicated to guide future management of the tītī population (Moller et al, 2009). But for landscape architecture seeking to design places as shaper of people (Meyer, 2008; Corner, 2014; Abbott, 2011, 2015, 2018), the opportunity presented here is how best to make these insights available, such that they could be adopted to generate new possibilities.

In chapter 2 and 3, I have explored the use of diagrammatic mapping as tools for teasing out the complexity of these concepts. In particular, my adaptation of Panelli and Tupa's layered diagram (figure) has led back to a challenge discussed earlier – in that landscape architecture's approach to conceptualising landscapes and 'sites' is still heavily influenced by McHarg's work 'Design With Nature' (1969). McHarg's method of mapping the

landscape as ecological layers is still practiced through Geographic Information System (GIS) applications as a tool for guiding design decisions. As Weller argues, this method has led to a top-down approach that "lack the specificity necessary to truly ground those values in the dynamic and highly nuanced ecological and cultural complexity of real places" (Weller, 2017).

Just has 'Design With Nature' influenced landscape architecture's approach to conceptualising landscape – how might concepts of mahinga kai do the same? What alternative methods could be explored for conceptualising the 'performative' qualities of landscape – taskscape? What tools might hold the greatest potential for exploring this opportunity?

4.2. Developing and exploring an adaptation of the quadrant-based tool for examining the case study of tītī harvest

James Corner argues that representation in landscape architecture “is both analytical and generative” (1994: 243). Diagrams, as Bowring and Swaffield argue, can be used as “tools or agents of investigation and revelation, forming new ideas, design and operations of the space” (2010, cited in Amoroso, 2016: 4). Similarly mapping, as Corner argues, can help understand the complexity of site, by abstracting and recording both objective and subjective qualities of the site (1999). Hansen suggests a synthesis of diagramming and mapping, which could enable a thinking of “representations that forge much more interesting relationships between space, time, information, and design” (2016: 29). A hybrid could also reveal “the intimate and dynamic relationships” between both space and time (Hansen, 2016: 29).

The methods of diagramming and mapping have also been applied by a number of researches that explores Ingold’s work in conceptualising landscape. These include: Rae’s thesis on exploring walking as a landscape-centric performance that affords a creative analysis and representation of a landscape’s materiality and temporality (2015); Blackburne’s paper on the analytical potential of reading landscape as tension based on Ingold’s concepts of landscape and taskscape (2015); Pickett’s thesis on applying Ingold’s work as lens for understanding of how landscape-centric experienced could be mapped (2016).

One diagramming and mapping tool that has been repeatedly used as a research tool within Lincoln University DesignLab has been a *quadrant tool*. It is based on intersecting axes, or ‘quattro stagioni’, and can be used as both an “analytical and generational” tool (Abbott & Bowring, 2017: 48). Two axes set out a tool for exploring the relationships and differences between elements (see figure 18).

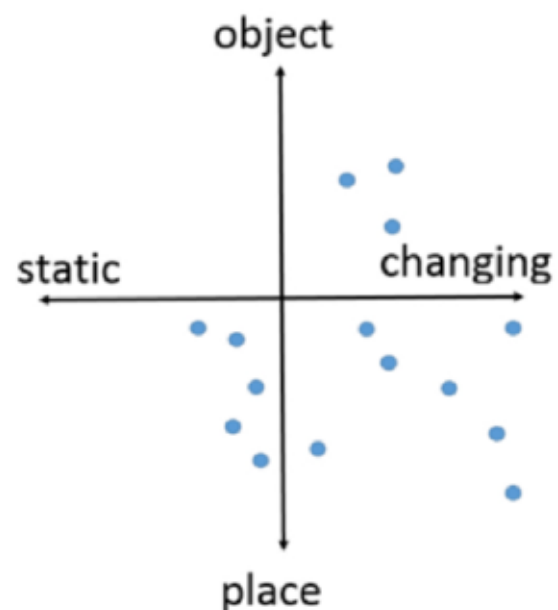


Figure 18. Mapping by researcher Jacky Bowring on identifying a spread of design critique positions across a range of practitioners for a specific memorial design Image: Abbott & Bowring (2017)

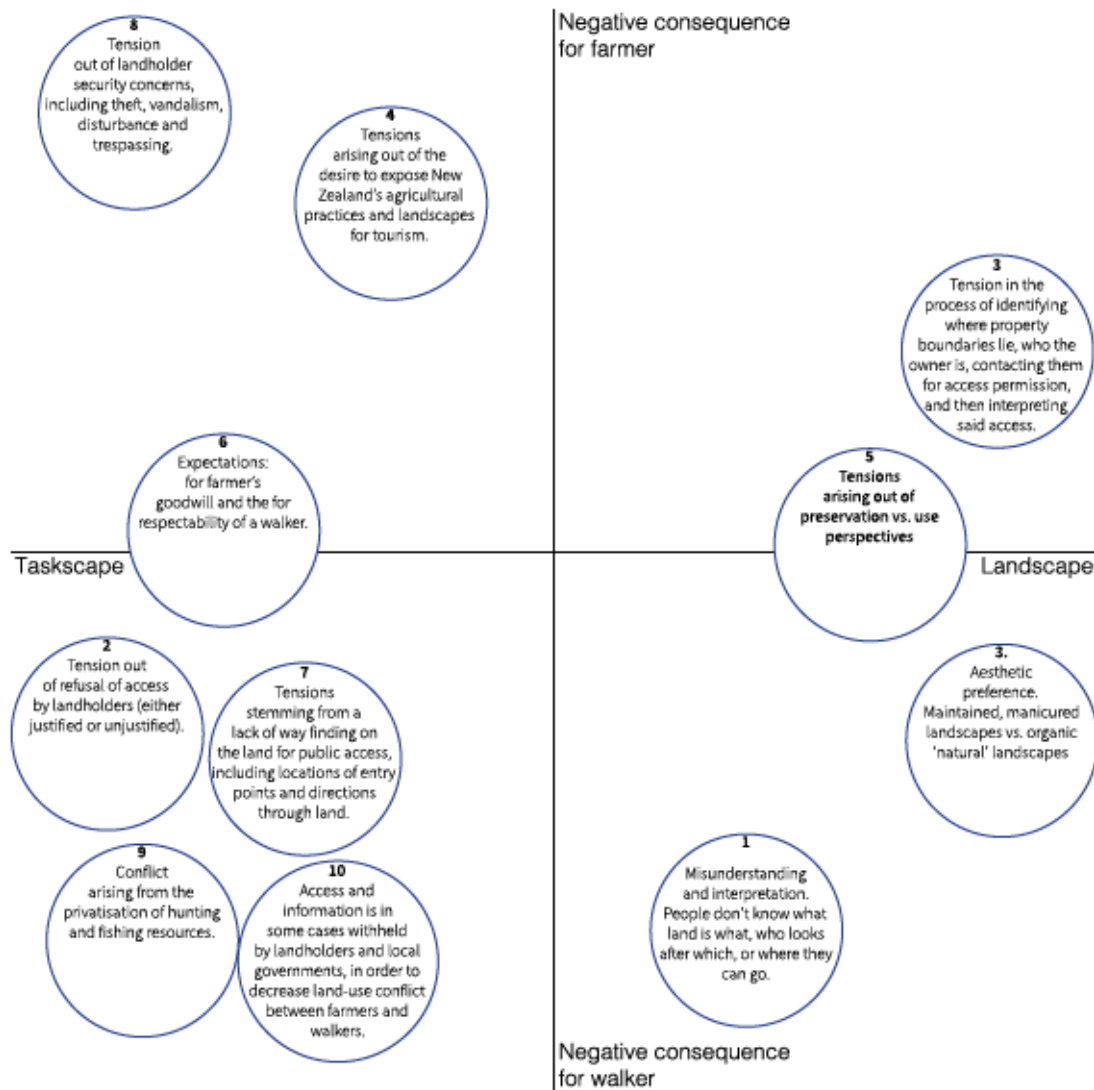


Figure 19. Blackburne's adaptation of the quadrant tool – On one axis the continuum is mapped between Ingold's understanding of landscape and taskscape, and on the other axis the negative consequence of for the farmer and walker from the tension. Image: Blackburne (2015)

Blackburne in her thesis on *Landscape as Tension* (2015) has also advocated for an adaptation based on Ingold's idea of 'landscape' and 'taskscape' (see figure 19). Blackburne finds using the tool to be revealing of complex and variable interrelationships between different elements, especially when

focusing on the "in-between", rather than the "individual characteristics" (2014: 39). Questioning the findings around Blackburne's adaptation has led to an alternative approach in this research. Figure 20 shows this adapted framework.

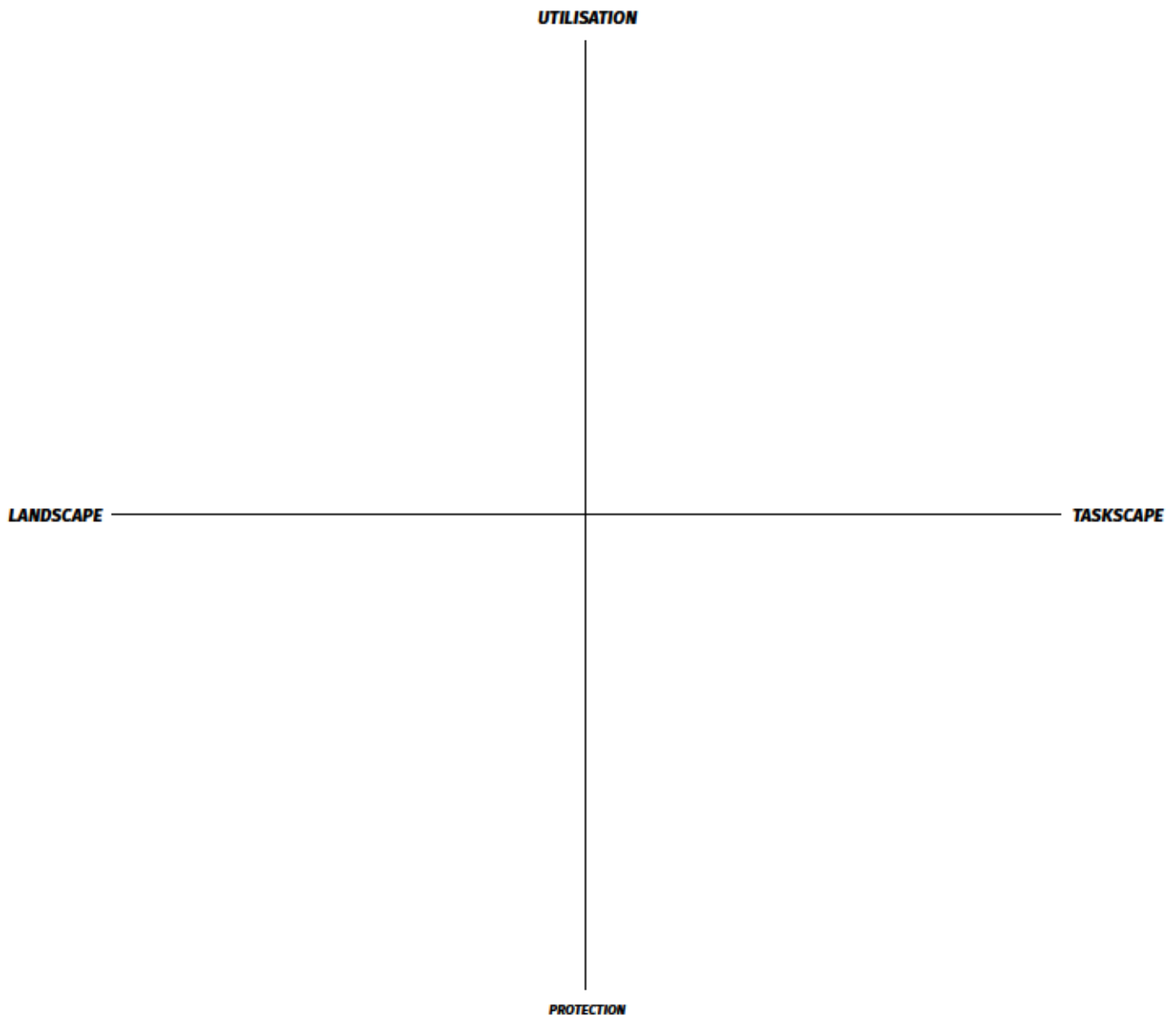


Figure 20. Framing of an axial mapping as adapted from Blackburne's thesis – On one axis the continuum is mapped between Ingold's understanding of landscape and taskscape, and on the other axis the utilisation and protection of resources.

This adaptation has been developed in response to insights generated from section 2 and 3. A horizontal axis of 'landscape' and 'taskscape' allows the mapping of site-based and practice-based features that together make up the landscape and taskscape. A vertical axis of 'utilisation' and 'protection' of

resources, which seeks to afford a mapping of mahinga kai as set of resources, practices, interrelationships, traditions, knowledge, artefacts, technologies and more (Panelli and Tipa, 2009). Having developed this, how might it be applied to mapping the case study of tītī harvest and its richness?

4.2.1. Mapping tītī harvest as a collection of landscape and taskscape features

Figure 21 explores a mapping of tītī harvest. In this key terms are located according to their characteristics as landscape and taskscape features (figure 21). The 'landscape' comprises of site-based/physical features including the bird, fish, vegetation and the islands themselves; the taskscape comprise of the practices of tītī harvest include the seasonal rituals and traditions of harvesting and learning, and kaitiakitanga strategies (Moller et al, 2009).

These features have been placed into a spectrum based on whether they focus on utilising or protecting the resources. For instance, the protection of habitat as a taskscape feature has been placed on the protection quadrant. This mapping can be considered effective in structuring and categorising the site into a collection of objects, rather than a place of process and relationships. How could this mapping of tītī harvest be relational, instead of binary? How might this be developed to express the richness of tītī harvest and its diverse practices in greater depth?

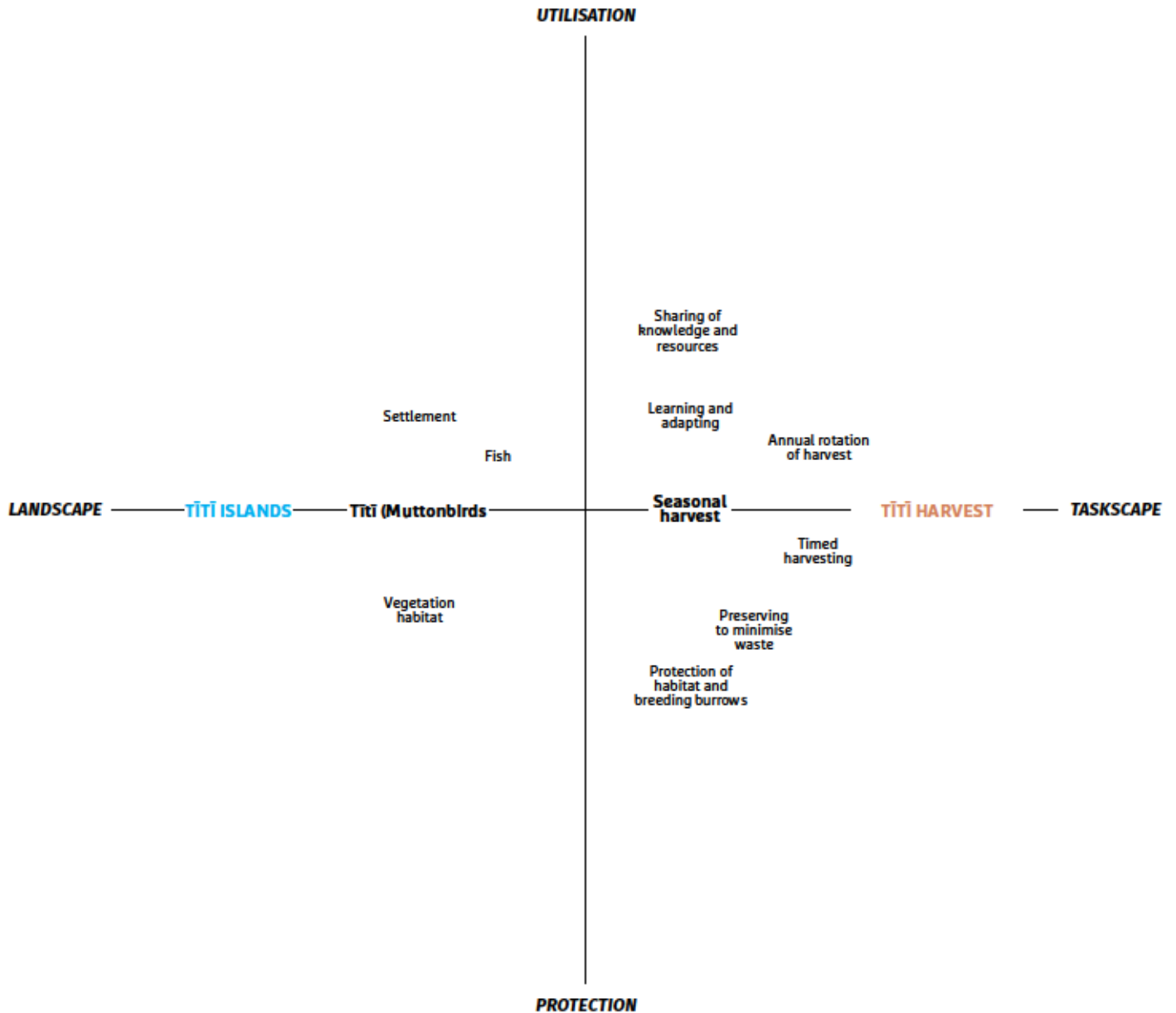


Figure 21. First axial mapping of tītī harvest – this approach focuses on structuring individual elements that together make up the site and practice of tītī harvest.

Figure 22 overlays the earlier conceptualisation of mahinga kai and its concepts as inspired by 'andscape' (Prominski, 2014). This has revealed limits to the first mapping of tītī harvest. For instance, the interrelationships between landscape and taskscape have not been fully explored in figure 21. Also, the time depth of the annual harvest and ecological cycles have yet to be explored.

Reviewing this overlay has led to a number of questions, prompting how the quadrant tool could be further explored: could the interrelationships between Tītī Islands and tītī harvest be expressed? How could the time-depth of tītī harvest, especially in the ways elders and youth engage in the learning and sharing of skills and knowledge be teased out? An opportunity is presented here to explore how the quadrant could better consider interrelationships and time depth the practices of tītī harvest entail.

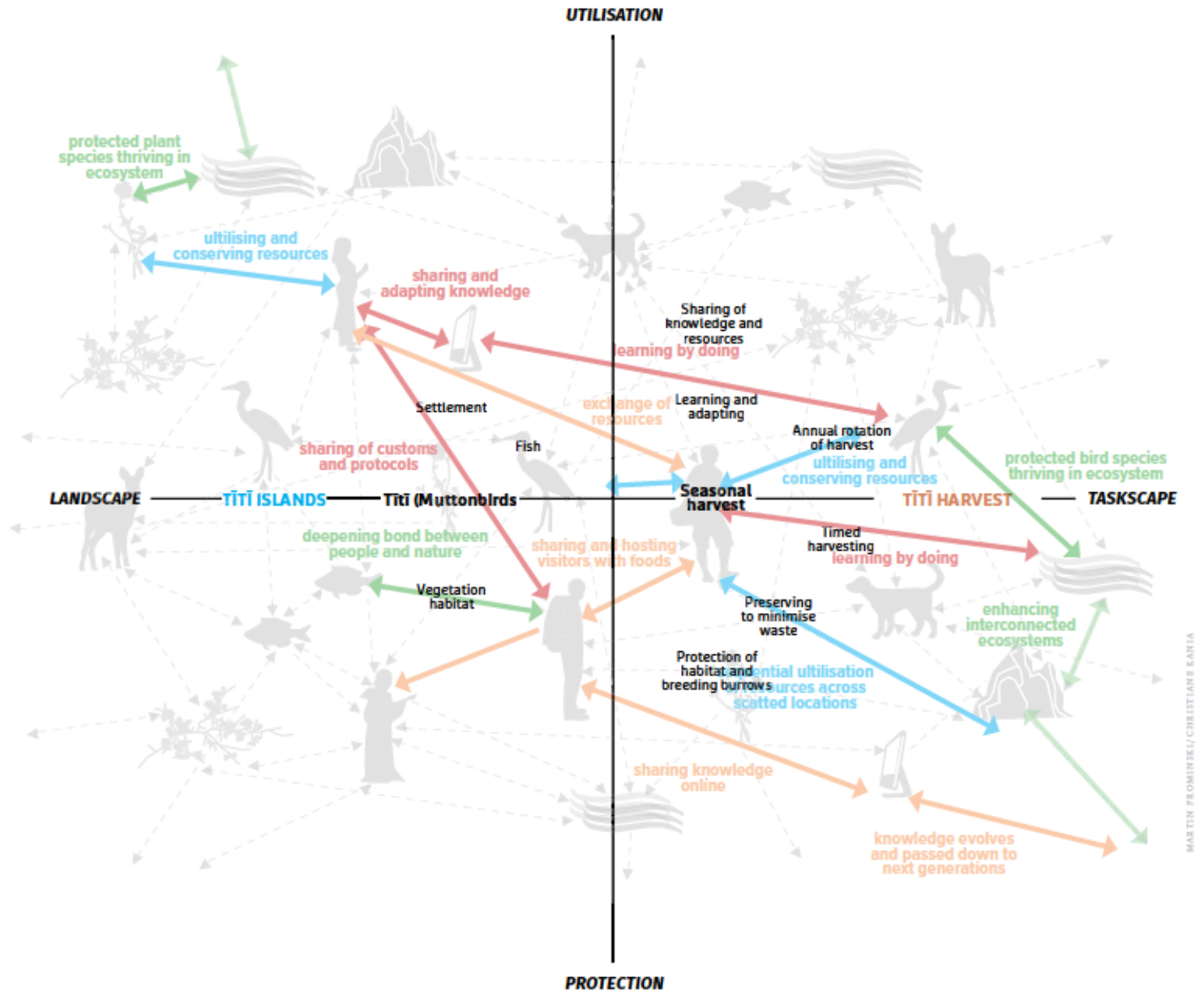


Figure 22. An overlay of a previous framework for conceptualising the concepts of mahinga kai, on the quadrant mapping of tītī harvest – how could the quadrant tool be progressed to better express the interrelationships between both the landscape and taskscape features? Adapted from Prominski (2014)



Figure 23. Jane Davis with her mokopuna (grandchild) Ruby Jane processing titi on Putauhinu Island. Image: Te Rūnanga o Ngāi Tahu Collection, Ngāi Tahu Archive (2017)

4.2.2. Mapping the temporality of tītī harvest – exploring a time-based expression of the site as a series of interlocking cycles in relation to seasonal harvest

Panelli and Tipa's emphasises on the transmission of traditional ecological knowledge in conceptualising the temporal dimension of mahinga kai practices (2009). In the context of tītī harvest. The annual rotation of harvest enables the intergeneration learning, adapting and sharing of knowledge and skills. Moller et al in their work consider tītī harvest as a "family activity where all members contribute to the workload, which includes harvesting, processing, domestic work and looking after small children" (2009: 246). Figure 23-25 show photos on how families would come together to take part in the diverse practices of tītī harvest, including harvesting, processing and making storage for the bird. Clucas et al suggest that much of the learning occurs by observing older family members as young children (2012). This provides "a route through which young birders establish independence" (Clucas et al, 2012: 156). Some tasks are more difficult to learn. For instance, the 'nanao' (day) phase, catching requires patience for young birders trying to catch the chicks (Kitson, 2004; Moller et al, 2009). Thus the learning process of tītī harvest is intertwined with the daily and seasonal cycles of the islands' ecosystems. Figure 26 explores this temporal richness.



Figure 24. Photos of Dean Tiemi Te Au and two of his sons, Dean and younger brother Tiemi, harvesting tītī chicks on Taukihepa, a tītī island off the south-west coast of Stewart Island. Image: Bruce Connew (2004)



Figure 25. Eighty-five-year-old Tiny Metzger and his whānau gathering tōtara bark to make Pōhā (kelp bags) for storing the tītī. Image: screenshot captured from youtube video on Ngāi Tahu's channel (2015)

This mapping explores how the learning process of tītī harvest could be conceptualised as a series of interlocking cycles. In this, the taskscape features of tītī harvest have been 'strung' into a dynamic sequence. These practices have been represented as a network of daily, seasonal, annual and intergenerational activities and cycles. Each cycle takes its form after its former cycle as a tradition, affecting the next as it adapts to the changing social-cultural and ecological processes of the landscape. Here consider the 'annual rotation of harvest' providing opportunities for elders and youths to engage in the learning and sharing of skills. In time, the youth 'mature' their skills and could further adapt to the islands and its unique conditions. The taskscape of tītī harvest here could be conceptualised as "a series of interlocking cycles, which build themselves into the forms of the landscape..." (Ingold,

1993: 157). These cycles exist "in the network of interrelationships between the multiple rhythms of which landscape is in itself constituted" (Ingold, 1993: 160). For instance consider both the birds and the birders 'mature': as young birders gain independence from learning how to extract the chicks during the nanao phase, while chicks that are safe can grow to become adults.

This mapping can be considered effective in teasing out the temporality of mahinga kai practices. For landscape architecture, a potential is presented here to produce 'sites' with performances that engage people with the learning and sharing of skills from nurturing nature. In particular, the exchanges between elders and youth present a unique set of exchanges where the landscape becomes a learning ground for building enduring connection with nature.

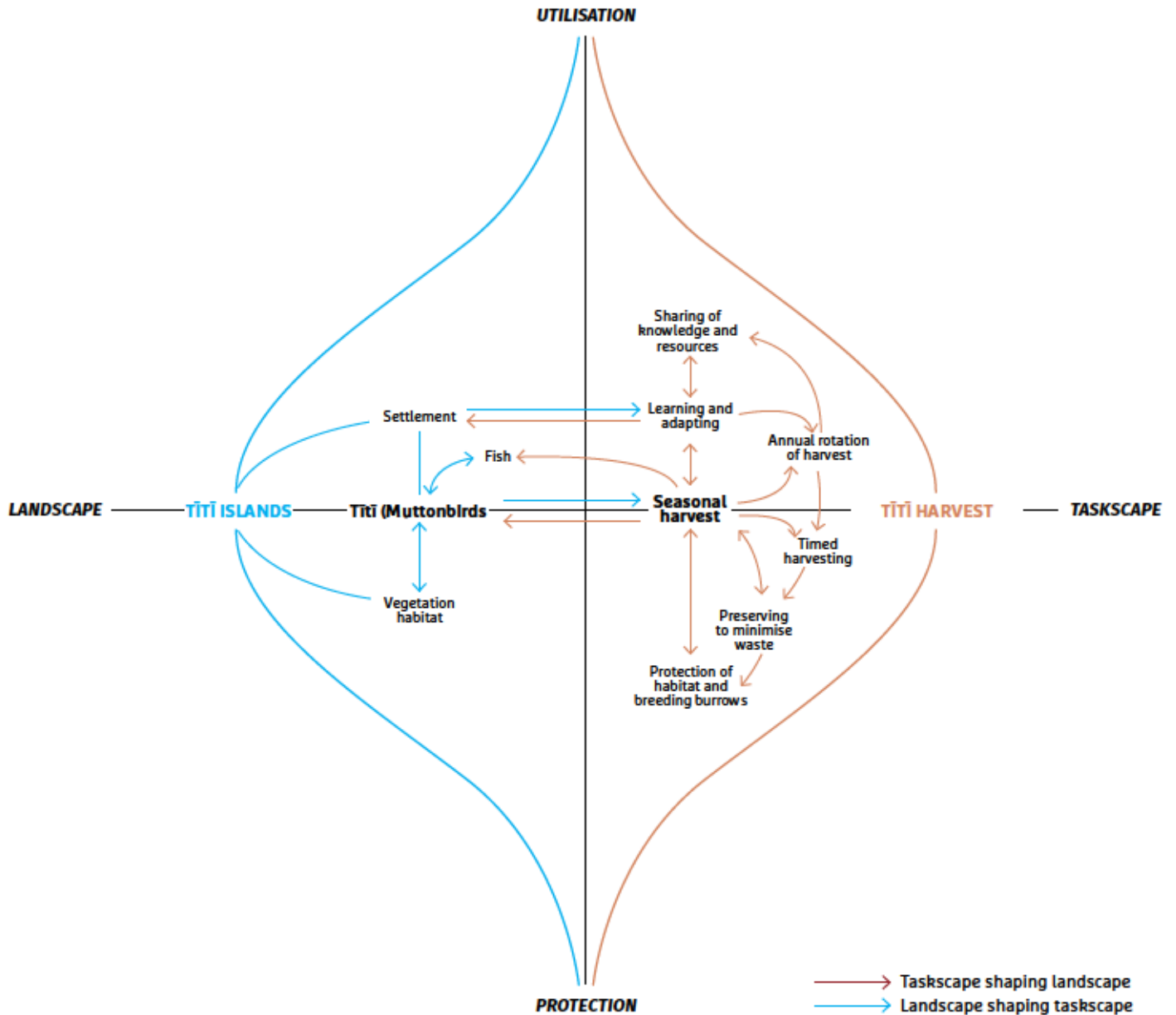


Figure 26. Second axial mapping of tītī harvest – This mapping explores a temporal representation of the site, revealing a series of interlocking social and ecological cycles, which together give forms to the site



Figure 27. Tītī preserved in traditional pōhā bags made of rimurapa (bull kelp). Image: Te Rūnanga o Ngāi Tahu (2014)

4.2.3. Mapping of the instrumentality of tītī harvest – exploring a expression of the site’s agency in shaping practices in relation to two landscape-centric technologies

The learning process of tītī harvest is reciprocal, not just between people, but also between people and nature. The unique plant and animal species that inhabit the islands provide opportunities for their harvester to be sustained and innovate in a number of ways. One significant example is the making of tools and technology. In the case of tītī harvest, the tītī-pōhā, kelp bags for storing tītī, has enabled a diverse sets of uses especially in preserving resources (figure 27).

Lyver describes tītī-pōhā as “bags made of hollowed, inflated blades of bull kelp, enclosed in strips of tōtara bark and placed in flax baskets”. The ‘invention’ of these can be considered as a response the need for preserving foods due to the remoteness of the islands (2002).

Rimurapa (bull kelp)

The making of these tītī-pōhā begins with the gathering of kelp blades on beaches in January or February. Finding the blades that have the suitable properties is important - blades of different sizes are gathered, which could fit birds of different size (Metzger, 2015). Different varieties of kelp have been ‘coming and going’ due to pollution problems. Pressure is blown into the kelp when it is still soft and moldable; its shape takes place as it becomes dried (figure 28 - top).

Harakeke (flax)

Next, harakeke is collected for its fibres to make up the base for the pōhā (see middle of figure 28). They are tied into a bundle and dunked into boiling water for minutes, as a means to softening it, making it easily to be worked. They are then woven into a kete (basket), which requires a skill that takes around five years to master (Metzger, 2015).

Tōtara

Going out into the forest to look for tōtara bark - “when the tree is ready to shed, that’s when you take what the tree gives you” (Graham Metzger in Pōhā - Ngāi Tahu Mahinga Kai [video], 2015). The bark wraps around the kelp and is tighten by harakeke strips to strengthen the pōhā (see bottom of figure 28). Each bag has been designed distinctively to be thrown and caught as a response to the lack of beaches on which supplies can be landed on the islands. In working with rimurapa, other usages have been inspired including cooking, surfing and propagation of seafood surfing (Museum of New Zealand Te Papa Tongarewa, 2009).

On the surface, the tītī-pōhā can be considered as an artefact that is by design. However, exploring the processes in how it has come into being has unveiled deeper relationships between this ‘technology’ and the endemic nature of the islands. Figure 29 explores a mapping of these relationships.

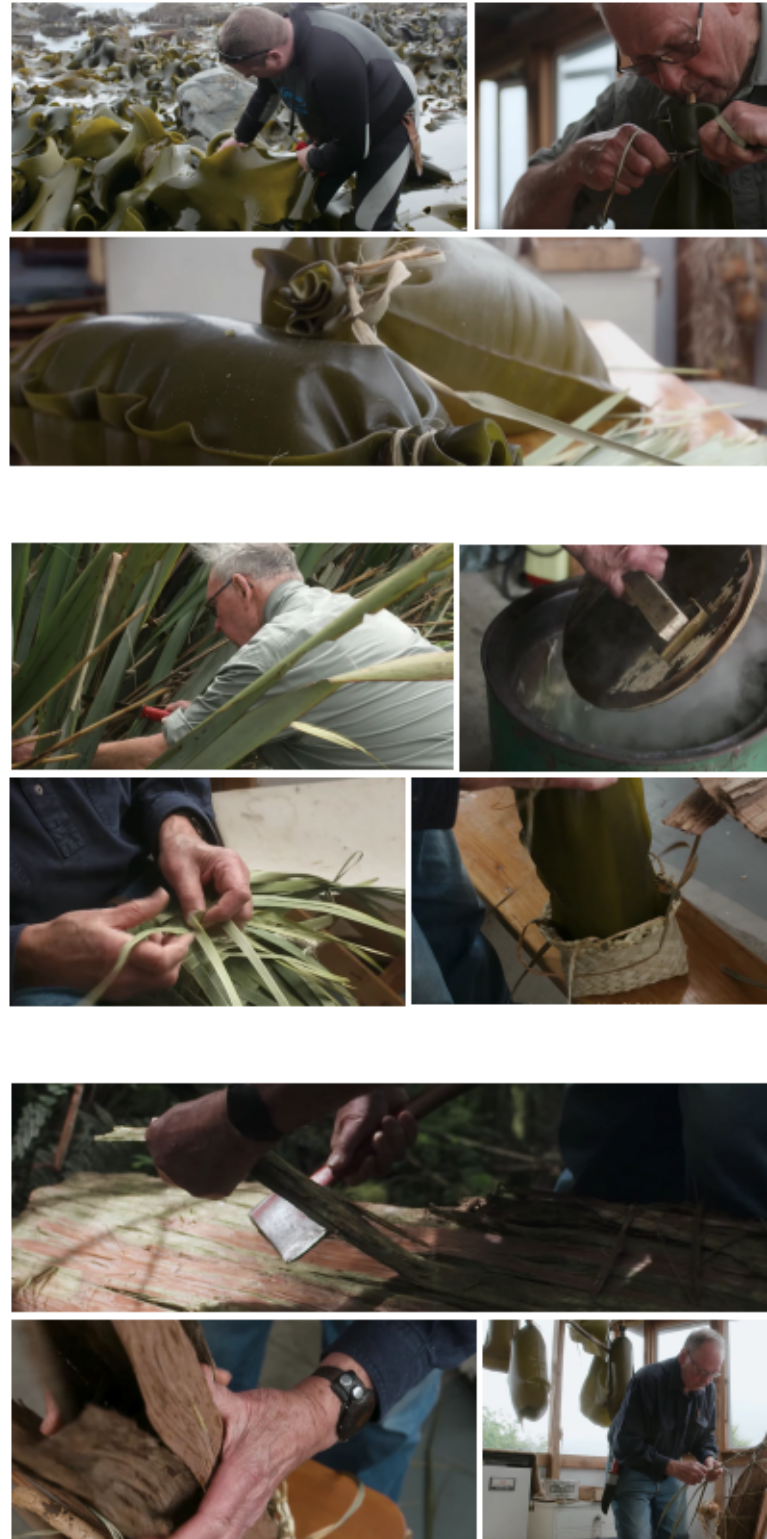


Figure 28. The sequential making of the pōhā bags by Graham Metzger and his whānau using rimurapa, harakeke and tōtara. Image: series of screenshots captured from the video ‘Pōhā - Ngāi Tahu Mahinga Kai’ (2015)

The key materials for making the tītī-pōhā's are the 'vegetation' on and around the islands, which include 'rimurapa, 'harakeke' and 'tōtara'. These have also provided habitat to the birds. In the making of the tītī-pōhā, the unique tactile qualities of these plants are transformed in respond to the skilled pattern of the weaver. The expressive qualities of endemic nature here have shaped people's responses in how they adapt and innovate to the utilisation and protection of these resources. As Tiley and Cameron-Daum argue, "in this case the agency of things consists in their ability to shape and mediate human actions" (2017: 8). The site, comprising of a palette of plant and bird species, has been engaging their harvester with an "embodied knowing of them" (Abbott, 2015: 35). A practical engaging with these species has led to a diversifying of practices for learning and adapting to the islands. Thus this mapping considers the tītī-pōhā as the result of

people's engagement with endemic nature of the 'site'. The 'harvest' in mahinga kai is not restricted to the extraction of resources, but rather it activates the innovative potential of these species. Through this reciprocity, both the people and endemic nature are better sustained. This expression of site and all of its things as interconnected relate strongly with the concept of whakapāpā and whanaungatanga, which see a familial relationship between people and nature (Phillips et al, 2012).

For landscape architecture, foregrounding the 'agency' of nature could help generate possibilities in shaping and inspiring people's interactions. This suggests a possibility for designing 'artefacts' and 'technologies' that could enable the 'site' to become a device, which engage its users with practices that directly engage with the qualities of ecology (Abbott, 2015).

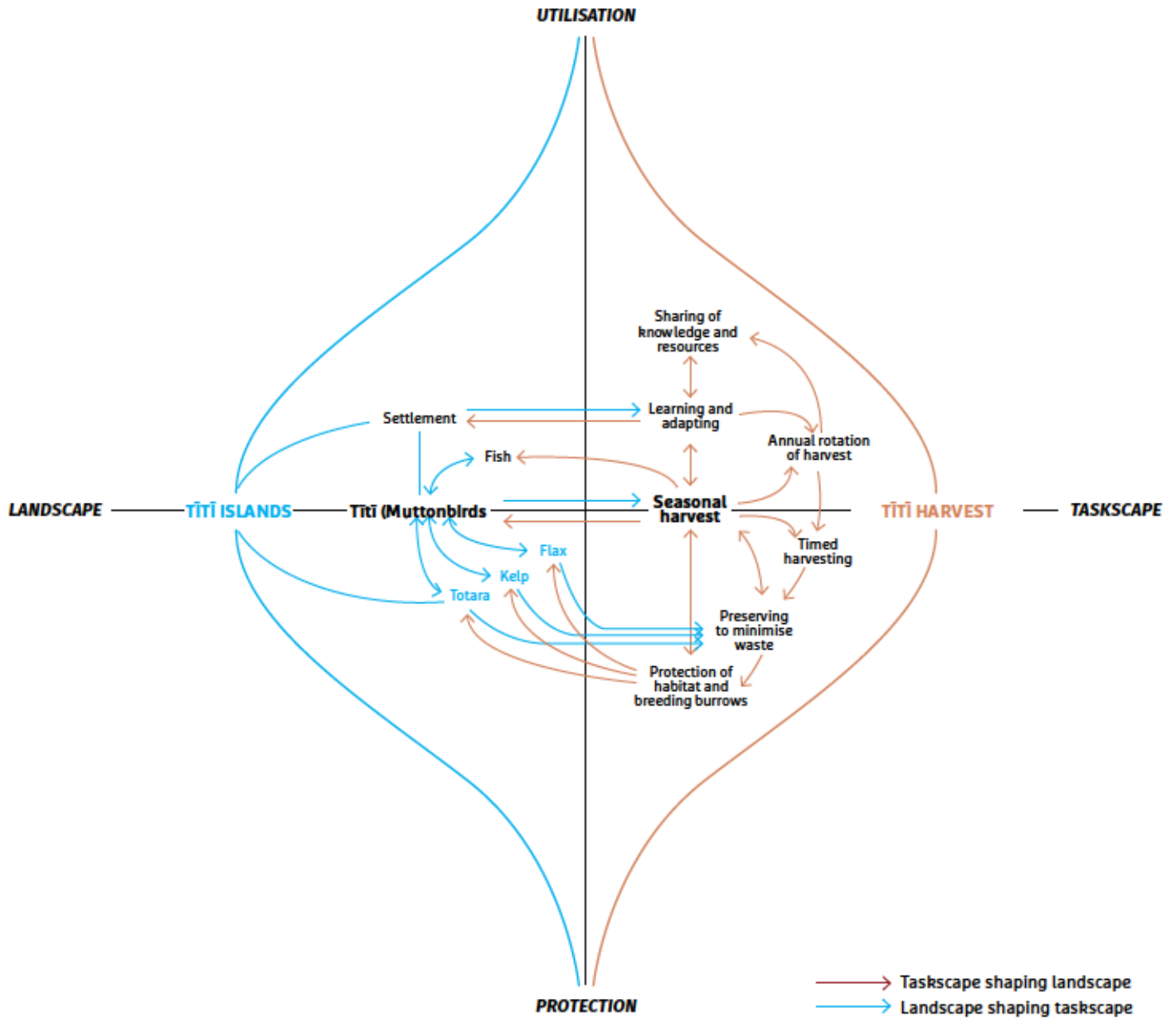


Figure 29. Third mapping of tītī harvest – expressing the instrumentality of the site, from which new ways of utilising and interaction with endemic biodiversity on the Islands can be adapted and shared

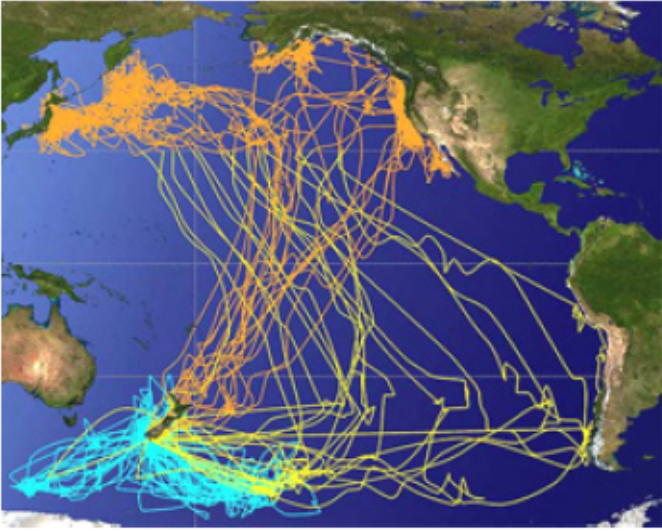


Figure 30. The migration paths of 19 tītī recorded as part of a research studying their movements during the breeding season. The lines show the birds' movements during the breeding season, the northward migration, and their winter location and journey back to the breeding colonies in Aotearoa New Zealand. Image: TerraNature

4.2.4. Mapping the spatiality of tītī harvest – exploring a dynamic expression of a site's boundary in relation to a contemporary marketing programme

The tītī and its harvester journey to the islands every year. The islands are a nest for the birds, traveling from the northern hemisphere to Aotearoa New Zealand during the breeding season (nzbirdsonline, 2018). While for people the islands are special and treasured places. Here both the bird and people cross paths, in which many of their interactions extend beyond the physical boundary of the islands. So where is the 'site'? Is it within the boundary of the islands themselves? Does it encompass the extent to which the birds and people travel?

As explored earlier, the Ahikā Kai programme has shaped how tītī could be carried out in the contemporary settings. With the Ahikā Kai programme, consumers can trace the products to where it comes from and "learn about the producer and their practices" (see figure 30). The Ahikā Kai blog also provides a place for consumers to connect with the producers that "facilitate quick and two-way discourse" and "creating ongoing relationships" (Reid & Rout, 2016). As Reid and Rout argue, "The Ahikā kai website provides a forum where consumers can come to know and connect with the producers and can gain an understanding of the provenance of the food... as well as the relationships between the producer and the food" (2016: 432). Ahikā kai can also be regarded as a platform for sharing knowledge, which "involves producers in the process of continually evolving, refining, and adopting best-practice through co-learning" (2016). Figure 33 brings in a layer of this marketing

Tītī (muttonbird) - Large bucket

- Kai from the land

\$300.00 per bucket

This product is currently out of stock.

Quantity: One bucket of 20 - 21 birds (depending on size)

Grade: A grade

Muttonbirds, or sooty shearwaters, are known as tītī in Te Ao Māori. These tītī have been harvested by Kāi Tahu Māori families with affiliations to the infamous Tītī Islands, off the coast of New Zealand's southernmost region.

Tītī harvesting practices have a strong cultural legacy for the people of this region, which includes the ancestral right to collect muttonbirds over a two month season every year, from 1 April to 31 May. During this time, whole families come together, travelling by boat and helicopter to the islands. There, they work day and night to catch and process the birds into a delicacy prized by Māori all over the country.

Muttonbirding is a seasonal, economic and cultural cornerstone of the area and for the whānau who have harvesting rights. The traditional uses of the birds have not changed much in a contemporary setting - they provide a rich food source, valuable trade item and are also prized for their feathers and down.

Muttonbirds are plentiful and, in recorded history, Māori have never imposed a catch quota on the islands. Harvest-management systems on each of the islands are determined by traditional guidelines (kaitiakitanga) to ensure the tītī remain plentiful for the next generation.



Supplier

Putauhinu Titi

Muttonbirding is a way of life, it's our culture.

[More info »](#)

[See more products from this supplier »](#)



Figure 31. Sales on tītī buckets on the Ahikā Kai website, demonstrating the brief history and practices of tītī harvest, and also introducing the supplier - Putauhinu Titi. Image: Ahikā Kai (2018)



Figure 32. Map of the Titi Islands surrounding Rakiura - overlaid with circles questioning where does the 'site' end. Image: Oikonos (n.d.)

programme to tītī harvest. This mapping explores how alternative 'mahinga kai-driven practices' are enabled by this programme. On many levels the new producer-consumer interactions have enabled diverse practices of 'learning and adapting' and 'annual harvest'. These could provide ways for engaging diverse demographics with the reciprocal relationships locals share with the islands, without having to physically visit. These 'boundless' ways of practicing mahinga kai entail an expansive understanding on where does 'site' of tītī harvest end. For instance, could we define the boundary of the 'site' with where Putauhinu

Island ends? Or is it where Rakiura ends? Or is it wherever the bird can be bought and delivered to? Or the extent to which the bird migrate? Questioning the notion of 'boundary' presents an opportunity - in that "the rights to gather mahinga kai", "accompanied by responsibilities to sustainably managed the utilisation of resources" can be extended to engage people beyond the islands (Panelli & Tipa, 2009: 460). Deep values of provenance could be created to connect with consumers to reciprocate by a number of ways such as donating to the management of the islands.

For landscape architecture, this opportunity could be essential. As Ingold argues, it is through interaction with the landscape people develop a personal connection with a place (1993). Blackburne adopts this perspective and suggest that for both 'inhabitants' – those who live here now and before, and 'outsiders' – those who pass through, could develop a deep connection with a place through interaction and engagement (2015). With increasing urbanisation, an opportunity is presented here to connect 'outsiders' with the responsibilities and practices 'inhabitants' share in utilising resources in their tribal lands and waters.

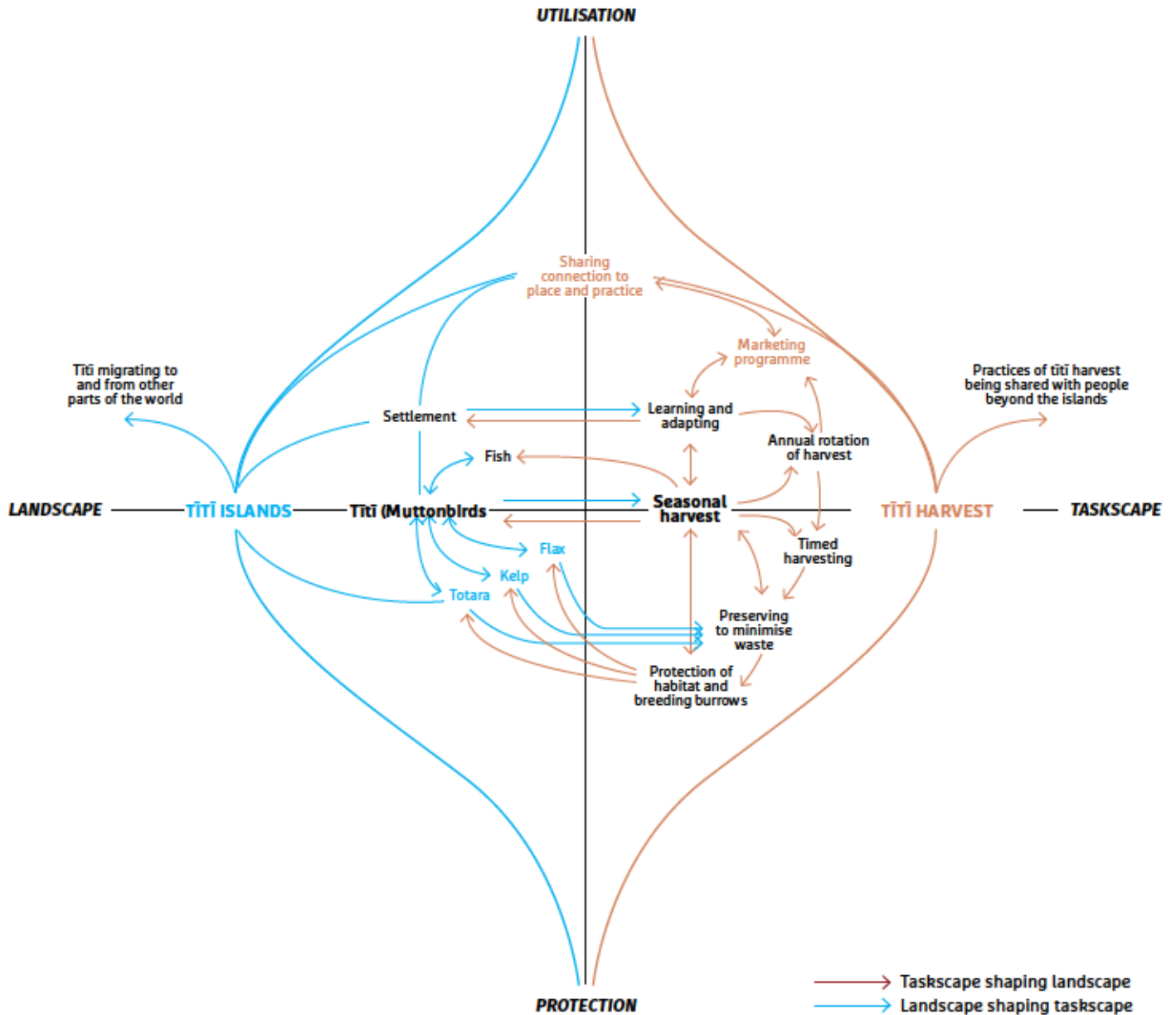


Figure 33. Fourth mapping of tītī harvest – a relational expression of a site and its practices, from which its boundaries are extended beyond the space

4.3. Case study phase: key insights

The expansive sites and practices of tītī harvest have provided a context for exploring the potential of a quadrant tool. Mapping has been used as a method for inquiry, following the ideas of Corner, who states that “mapping unfolds potential; it re-makes territory over and over again, each time with new and diverse consequences” (Corner 1999b: 213). In this a dynamic mapping has progressed the quadrant tool and teased out its potential for conceptualising landscape in relation to taskscape.

The quadrants have progressed from an organisational approach that structures the site as a collection of things, to an exploratory one that teases out the ‘site’ as a field of sequential and processual interrelationships. This fluidity has enabled “the scope, context and analytical approach to evolve during the investigation, in response to emerging patterns and insights” (Swaffield, 2016: 135). Further, it could allow other relevant features to be added and overlaid onto the existing quadrants. This quality in particular relates back to the earlier framework for conceptualising mahinga kai (Prominski, 2014; Panelli & Tipa, 2009), as both of these tools invite an open-ended exploration to the concepts of mahinga kai and landscape.

This adaptation has also been simultaneously analytical and generative. In mapping tītī harvest, it has helped progress the insights discussed in the previous chapters, and have led to three key design opportunities (table 2).

These opportunities suggest a designing of ‘site’ as performance, device and product. These expand on Abbott’s work in the ‘Practices of the Wild’, and propose designing of practices that are specific to the concepts of mahinga kai (2015). From here I have referred to these practices as ‘mahinga kai-driven practices’, as they could be generated from working with the concepts of mahinga kai, but are not restricted to traditional practices.

Instead of merely discussing these opportunities, I have sought to engage in a design investigation to tease out what forms they could take. Having explored potential of the quadrant tool in conceptualising landscape and taskscape, the key question now is could such as tool be generative in designing future mahinga kai-driven practices? Could it build possibility and imaginative scope for landscape architecture, particularly for designing landscape as shaper of people (Meyer, 2008; Corner, 2014; Abbott, 2015, 2018)?

THREE KEY DESIGN OPPORTUNITIES REVEALED IN THE CASE STUDY PHASE
OPPORTUNITY ONE: DESIGNING SITE AS PERFORMANCE Design could programme a series of interlocking rituals, performances, exchanges and rites of passage, in which youth and elders could engage each other and with nature in an intergenerational learning process of mahinga kai practices.
OPPORTUNITY TWO: DESIGNING SITE AS DEVICE Technology-based design could activate 'site' as a device, which engages people with a diverse set of mahinga kai-driven practices that allow them to better connect with nature
OPPORTUNITY THREE: DESIGNING SITE AS PRODUCT Provenance-based products could be designed to connect 'outsiders' with the practices and responsibilities 'inhabitants' carry out in working the local resources

Table 3. A summary of the three key design opportunities revealed in the case study phase
- each suggesting the potential to expand landscape architecture's scope beyond the current scope of shaping specific sites

chapter five

DESIGN INVESTIGATION

This design investigation phase has sought to explore the generative potential of designing 'alternative mahinga kai-driven practices'.

5.1. Te Whenua Hou: A productive landscape for exploring the designing of alternative mahinga kai-driven practice

Abbott in his work on 'The Sustaining Beauty of Productive Landscape' presents the design at Te Whenua Hou, a dairy conversion development situated adjacent to the Waimakariri River of North Canterbury, Aotearoa New Zealand. The core component of the project has been the designing of a "distributed native forest" that are made up of 1.2 million trees, made up dominantly of endemic species (figure 34).

The decision of using predominantly on endemic species, though requiring a larger investment to be established, has been an expression of the values Te Whenua Hou's owner holds – Ngāi Tahu Property, a company wholly owned by the local Māori tribe. This presents a unique challenge for navigating

between economic profit and ecological outcomes. In response, Abbott argues that the planting design "links and strengthens both agricultural and biodiversity outcomes by the way it threads its way through the development" (2018: 16). To this a dynamic planting palette consisting of a series of shrubs and trees have been proposed, some sited within the pasture blocks, while the others wrapping around the edge of the irrigated pivots (figure 35).

Beyond its boundary, Abbott argues that the large-scale planting could provide the possibility to re-establish a major ecological corridor for endemic bird species to travel between "the foothills of the South Island's Southern Alps and the rapidly reforesting gullies of the coastal Banks Peninsula, with options for neighbouring properties to join in" (see figure 36) (2018: 18).

While Te Whenua Hou has not made explicit connections to the concepts of mahinga kai, its design shares strong connections to some of the values. For instance, a mechanistic and rhythmic planting pattern sought to afford the options be a "productive source of rongoa (native medicine) and other resources"



Figure 34. Artist Impression of the Te Whenua Hou planting design as seen from the air. Image: Abbott (2018)

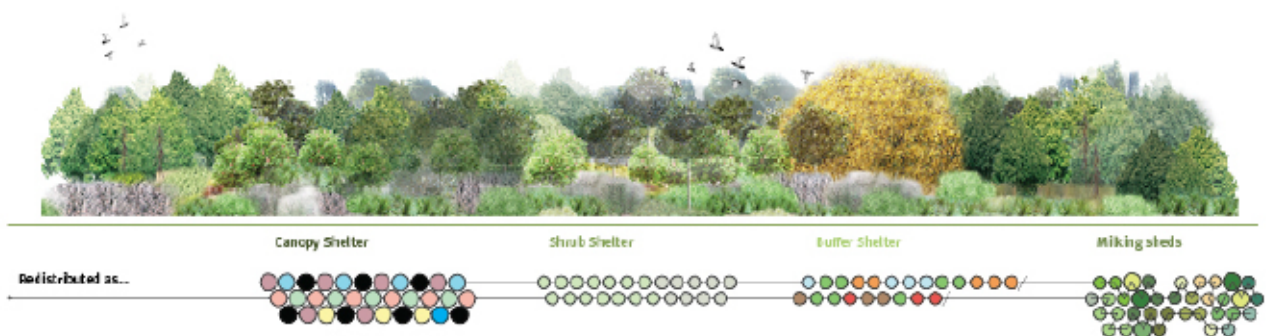


Figure 35. Schematic illustrating the different design of shelterbelts - Each consisting of different species and planting patterns, allowing for a multi-functional approach to planting design at Te Whenua Hou. Image: DesignLab (2019)



Figure 36. Schematic showing the location of Te Whenua Hou on the intensively farmed Canterbury Plains, and the potential to establish a bird corridor between the foothills of the Southern Alps and the coastal Banks Peninsula

(Abbott, 2018: 18). Abbott also argues that the purpose of the planting design intended to be a “catalyst of change and active instrument in shaping current and future activities within the landscape”, as opposed to achieving aesthetic or conservation goals (2018: 18). Further to this, as Abbott argues, “given that the full scope of potential outcomes is still being considered, from both landscape architectural and ecological perspectives, the planting design is more an experimental process than a site-specific solution” (2018: 18).

While Abbott’s goals and claims for Te Whenua Hou are clear and aspirational, most of these aspects have not been fully realised. In particular, Abbott’s statement on

the possibility for the planting design at Te Whenua Hou to direct people’s actions remain unclear, as to how this could be achieved beyond the maintenance tasks carried out by farmers. Further, partnering with Ngāi Tahu Property, how could concepts and practices of mahinga kai be better supported? Expanding from the exploration of tītī harvest, what is the possibility for designing ‘planting’ at Te Whenua Hou as a set of practices, as opposed to a system of functions? Could these practices engage with people beyond its boundary, and with the “everyday stewardship” farmers undertake in nurturing for the plants? It is to these questions I have sought to explore through a design investigation, how the quadrant tool could be further developed to

explore the creative potential of mahinga kai, particularly in designing the simultaneous utilisation and protection of ecology. Given my lack of involvement in this project, Te Whenua Hou provides the conditions for a 'fresh' investigation.

5.2. Design approach – applying a normative landscape scenario development method to explore the generative potential of the quadrant-based tool adaptation

Given the "conjectural" and "experimental" nature of Te Whenua Hou, I have sought to identify a design method that could enable a response to both its present situation and future possibility. As such, I have adapted a normative landscape scenario development method by Nassauer and Corry's (2004). Normative scenarios, as they propose, "are distinctive in that they portray futures that should be" (Nassauer & Corry, 2004: 344). They propose a generative process that is "constructed in an iterative design process" (Nassauer & Corry, 2004: 345). Nassauer and Corry propose four sequential questions for enabling the scenario generation and evaluation process:

1. The past and present landscape: what is relevant about the existing landscape and its past?
2. Alternative future landscapes: how should the landscape change?
3. Alternative future landscapes: what is relevant about how the landscape could be?

4. Evaluation of alternative landscape patterns: how does their performance compare?

These questions have acted as prompts for progressing my earlier adaptation of the quadrant tool. The first three questions have been approached as a mechanism for generating the scenarios, while the last question has been investigated to reveal insights from reviewing these scenarios.

Through out the design process, in both idea generation and representation stages, the quadrant tool has been the key method of inquiry, design and communication.

This framework applies the sequential questions developed by Nassauer and Corry to progress and tease out each design opportunity (summarised in section 4.3) in response to the context of Te Whenua Hou. These questions have been explored with the quadrant tool, which has allowed the ideation process to iteratively navigate between the present and imagine alternative mahinga kai-driven practices that could generate desired landscape outcomes in the future scenarios. A detailed example of how this framework has been used is shown in figure 37-39.

Figure 38-40 illustrates the iterative and sequential process taken in generating scenario one. This process begins by mapping the present situation, which is the same across all three design scenarios. Currently, the taskscape of planting involve only the farmer, and focuses solely on establishing the planting. Thus only a limited number of landscape outcomes and features can be provided for, including 'sheltering of animals' and increase of 'endemic biodiversity'. From here the quadrant has then been used to investigate what alternative mahinga kai-driven practices could be imagined to expand the realm of the taskscape. For scenario one, this process draws its inspirations from the intergenerational learning process of tītī harvest. With the quadrant diagram, it begins by mapping a series planting-related cycles, from growing seedling, maintaining the planting to harvesting its materials. This has led to ideas that ask if this series of exchanges could extend to engage farmers with school pupils, just has the elders and engage with younger birders in Rakiura tītī harvest (Moller et al, 2009). From here, these exchanges have then been developed as a series of interlocking tasks and events that occur seasonally. With this alternative taskscape scenario, a future situation has then been mapped next to imagine what desired landscape outcomes could be generated by these practices.

Following Nassauer and Corry's method, it has enabled a simultaneous investigation and imagination of "the present, pathways from the present to the future, and a description of the future" (Nassauer & Corry, 2004). This process has been iterative in using the quadrant mapping method as a inquiry tool, following the ideas of Corner, who states

that "mapping unfolds potential; it re-makes territory over and over again, each time with new and diverse consequences" (Corner 1999b: 213).

5.3. Design scenarios – exploring mapping as a tool for inquiry and imagining alternative mahinga kai-driven practices as part of three normative ‘taskscape’ scenarios

The following section provides descriptions of the three scenarios developed. Each scenario has been developed in response to the three key design opportunities outlined in table 3 from the case study phase. For instance, scenario one explores time-based interventions as a series of taskscape features, engaging people with planting-based performances that can materially contribute to the regenerative efforts at Te Whenua Hou.

1. THE PAST AND PRESENT LANDSCAPE

what is relevant about the
existing landscape and its
past? (figure 38)

1. SITE AS PERFORMANCE

Design could programme
a series of interlocking
rituals, performances,
exchanges and rites of
passage, in which youth
and elders could engage
each other and with nature
in an intergenerational
learning process of
mahinga kai practices.

A. MAPPING THE PRESENT

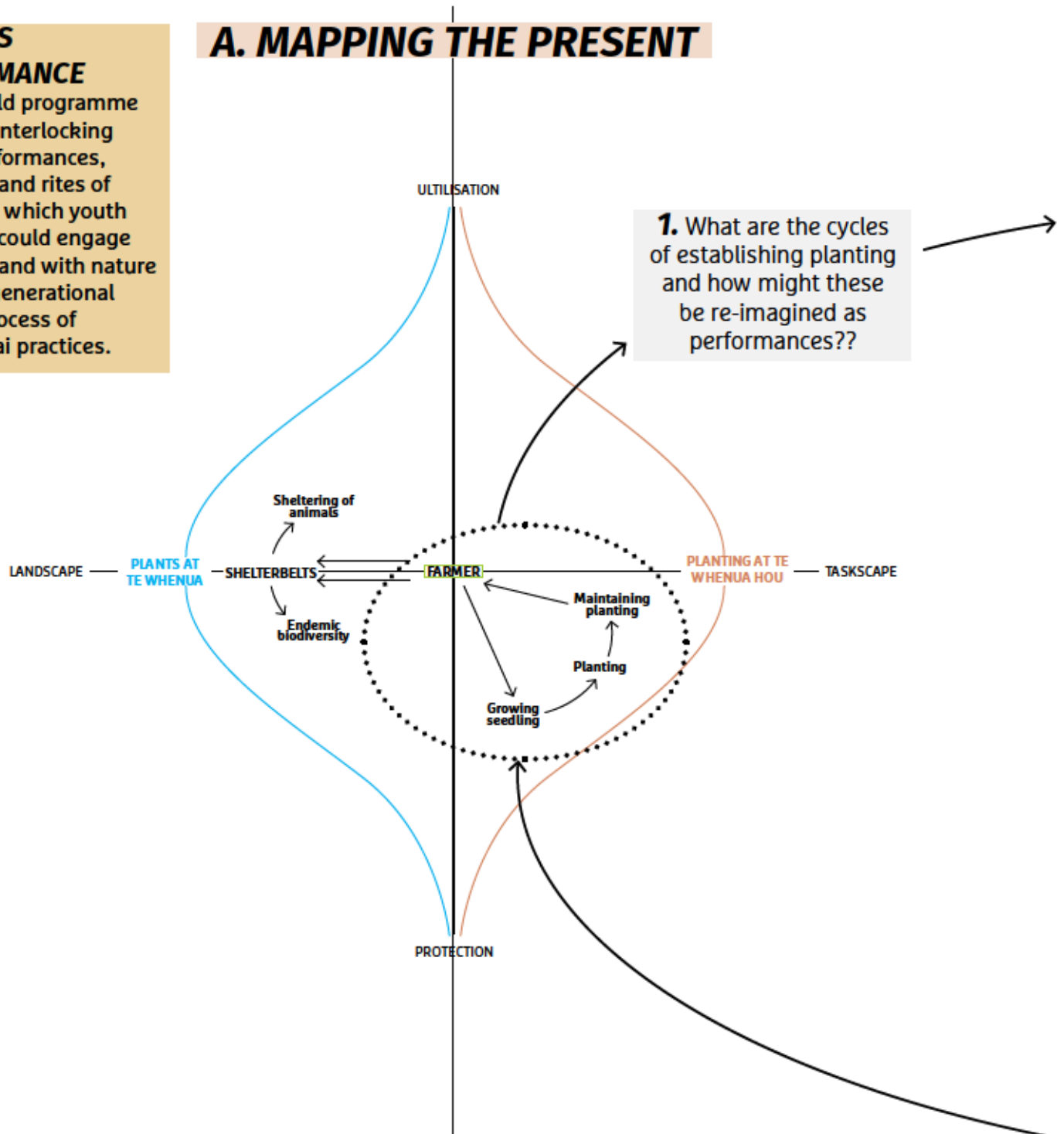


Figure 37. A framework for applying the normative landscape scenario development method to explore the quadrant tool in designing alternative mahinga kai-driven practices (part 1/3)

how should the landscape
change?

B. EXPLORING ALTERNATIVE PRACTICES

2. Could these cycles also engage youth and farmers in a series of exchanges?

3. What practices might be imagined in this alternative 'taskscape' scenario?

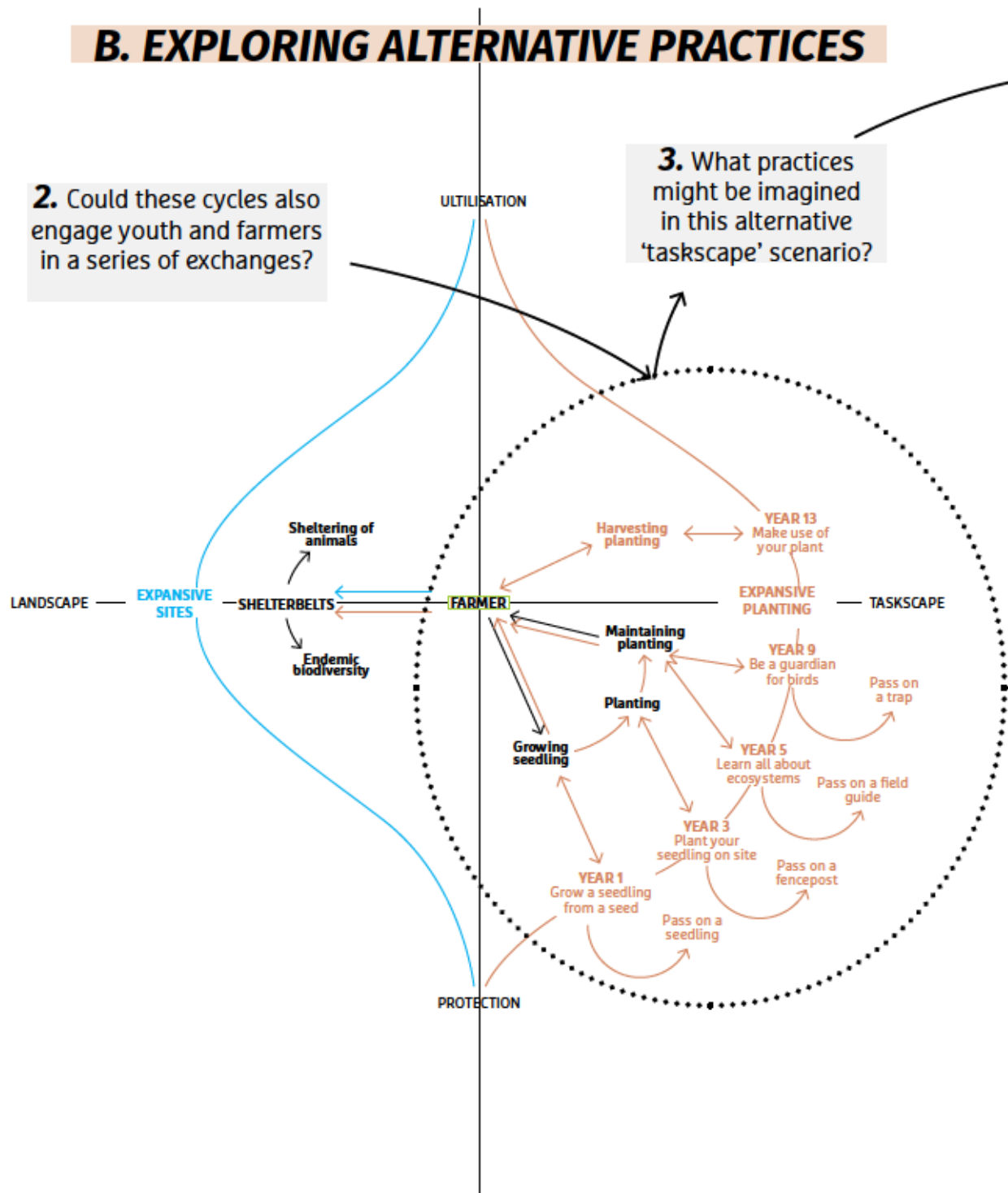


Figure 38. A framework for applying the normative landscape scenario development method to explore the quadrant tool in designing alternative mahinga kai-driven practices (part 2/3)

3. ALTERNATIVE FUTURE LANDSCAPE

what is relevant about how
the landscape could be?

C. IMAGINING THE FUTURES

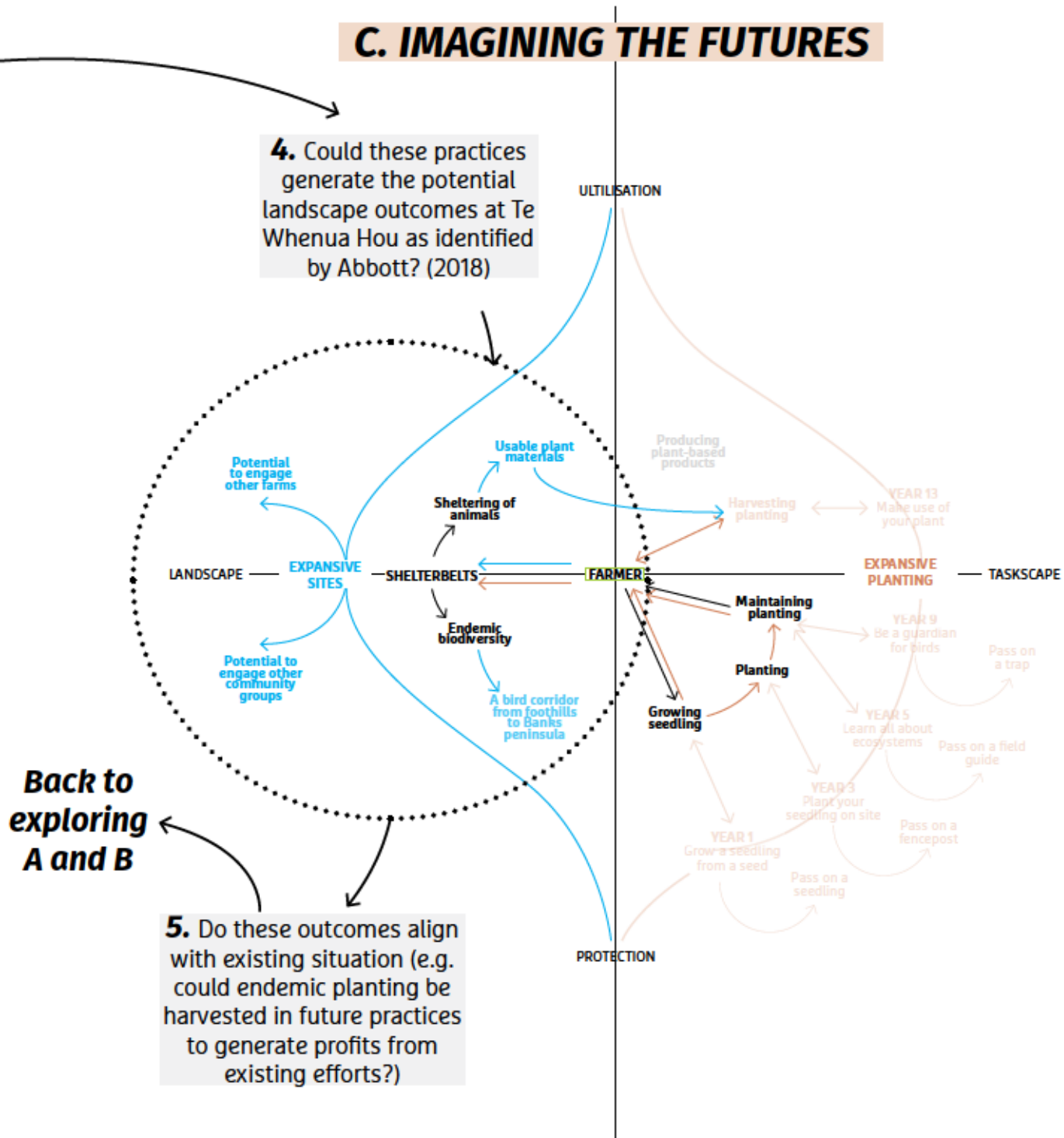


Figure 39. A framework for applying the normative landscape scenario development method to explore the quadrant tool in designing alternative mahinga kai-driven practices (part 3/3)

Scenario One – Exploring a designing of site as performance: intergenerational planting programme that engages farmers and school pupils as ‘elders and youth’ in a series of tasks, events and ‘rites of passage’

The current approach to establishing the planting rely solely on the farmers. The rhythmic sequence of the planting design has allowed a ‘easy-to-follow’ method for planting-related tasks. It also affords future possibility for inviting others beyond the site to take part in these tasks, in ways that could materially generate the desired economic and ecological landscape outcomes. This programmatic design explores a scenario based an intergenerational exchange of planting-based skills and responsibilities that could support the ‘everyday stewardship’ of the farmers. Figure 41 shows how this design could play out over time.

This mapping explores a future ‘taskscape scenario’ that comprises of a series of tasks, events and rites of passages that engage both farmers and school pupils. These interactions have been considered as a long-term mechanism for increasing the ecological and economic impact from regenerative planting at Te Whenua Hou. The sequence includes:

1. Year 1 school pupil begins their programme by receiving a seedling from a year 3 student
2. He/she takes care of this seedling until it is ready to be planted at Te Whenua
3. A planting day is hosted every year when new batch of seedlings are ready to be planted. This involves the farmer showing students how and where to plant. The student record their details via an app/online platform to stay connected with their planting and farmer
4. The caring and maintenance of the planting is shared between the pupil and a farmer who is assigned to it

5. Each season the pupils return to carry out a workshop with the farmer on carrying out a new task
6. As they graduate year 3, seeds are sourced and grown into seedlings to reciprocate back to the farmer, and to the next year 1 student
7. These cycles repeat until student graduates high school (year 13) and they can start harvesting from the plant for other uses

In time, this programme can be undertaken to engage regenerative planting on other farms (see figure 41 on the landscape side). Also, it could evolve into other practices for engaging different community groups across the bird corridor. For instance, programme for the coast could focus on water quality and fishing, and reciprocating with those from the foothills who have looked after the ‘beginning’ of the corridor. Here the site has been imagined as a series of performances that could over time unfold into actions that directly regenerate the landscape through collective efforts of planting.

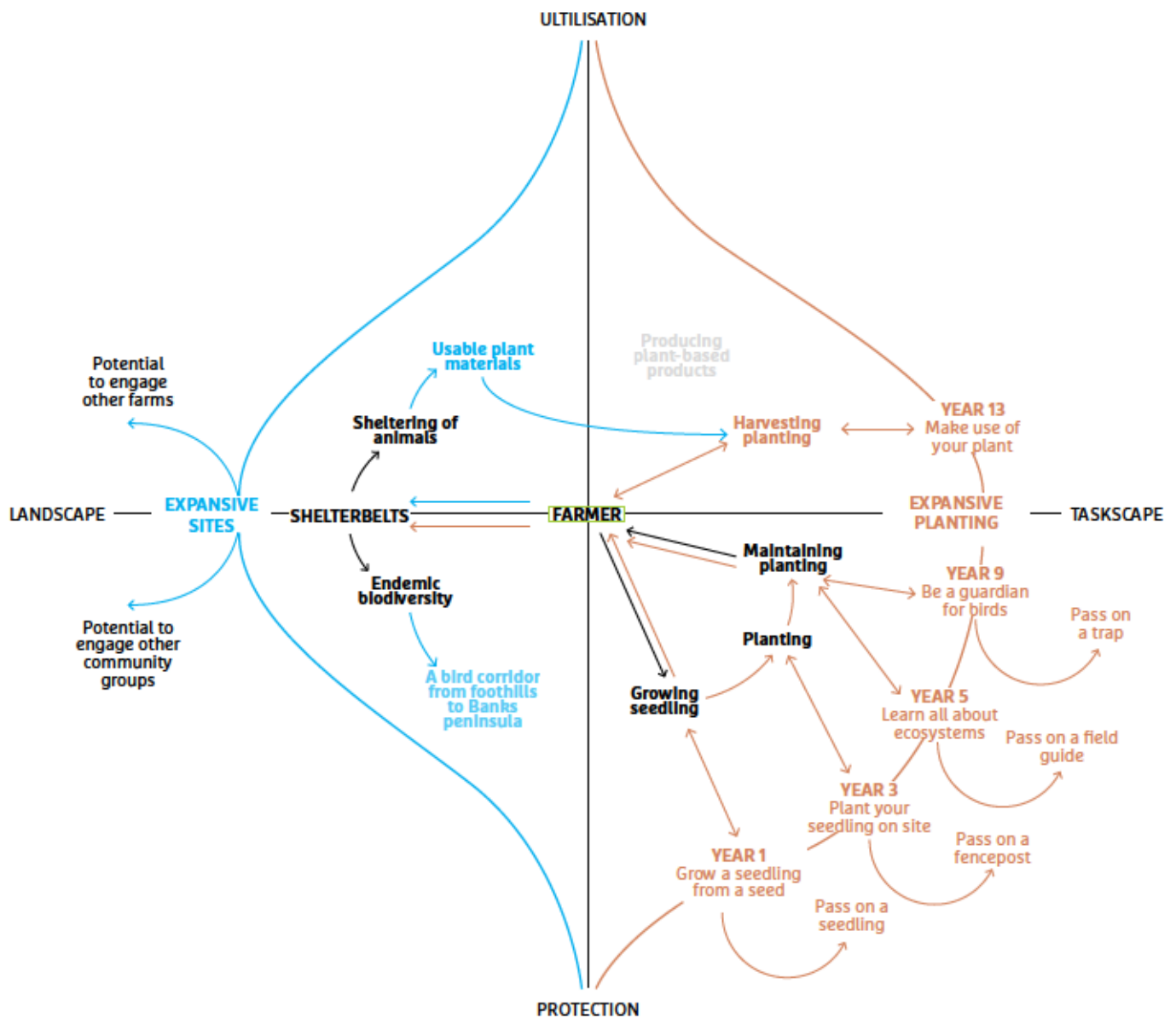


Figure 40. A quadrant-based exploration and representation of scenario one – imagining a future ‘taskscape’ scenario in which farmers and school pupils reciprocate in a series of planting-related tasks, events and rites of passage, which together could generate desired landscape outcomes

Concept Two – Designing site as device: programming an app-based seed farming operation at Te Whenua Hou to create a distributed nursery for regenerative planting on other farms and sites

Planting that are eco-sourced adapt better to local conditions. For Te Whenua hou, an opportunity is presented to generate profits from its reserve plots, where planting have been proposed to be planted primarily for ecological outcomes. This scenario draws its inspirations from the Te Pōhā o te Tītī application used for managing tītī harvest, particularly in how as a device, it enables a contemporary approach to harvesting, learning and monitoring. With this, scenario two explores the idea of a endemic seed farm for engaging communities, local nurseries and farmers with the reciprocal practices of growing endemic plant seedlings. As Abbott argues, the design of Te Whenua Hou seeks to be a “virus-like catalyst” that can affect landscape change. Figure 42 explores a crowd-sourced app has been considered here to grow the ‘seedling’ bank for Te Whenua Hou.

This mapping explores a taskscape where the practices of adopting seedlings become the mechanism for creating a eco-sourced seed farms at Te Whenua Hou. This design could be scalable over-time. The cycles of seedlings maturing interlock with the social rhythms of local nurseries, farmers and communities:

1. Using an app, People adopt seedlings from local nurseries, which the planting and caring of are carried out by farmers at the site
2. The nursery visit farm to source seeds as the planting matures, and reciprocate new seedlings back to the farmer and adopters
3. Adopters could choose to ‘invest’ these back onto the same farm, or have them planted in other farms or conservation projects

4. Economic incentives are created for both local nurseries and farmers, while people could build place-attachment and sense of stewardship through their efforts

The farmer-nursery-adopter interactions can be considered reciprocal, processual, and capable of being generative of the project’s mission in establishing its ambitious planting goals. Here the site has been approached as a device for engaging with people beyond the site, with the practices of sourcing, growing and dispersing eco-sourced plant seedlings.

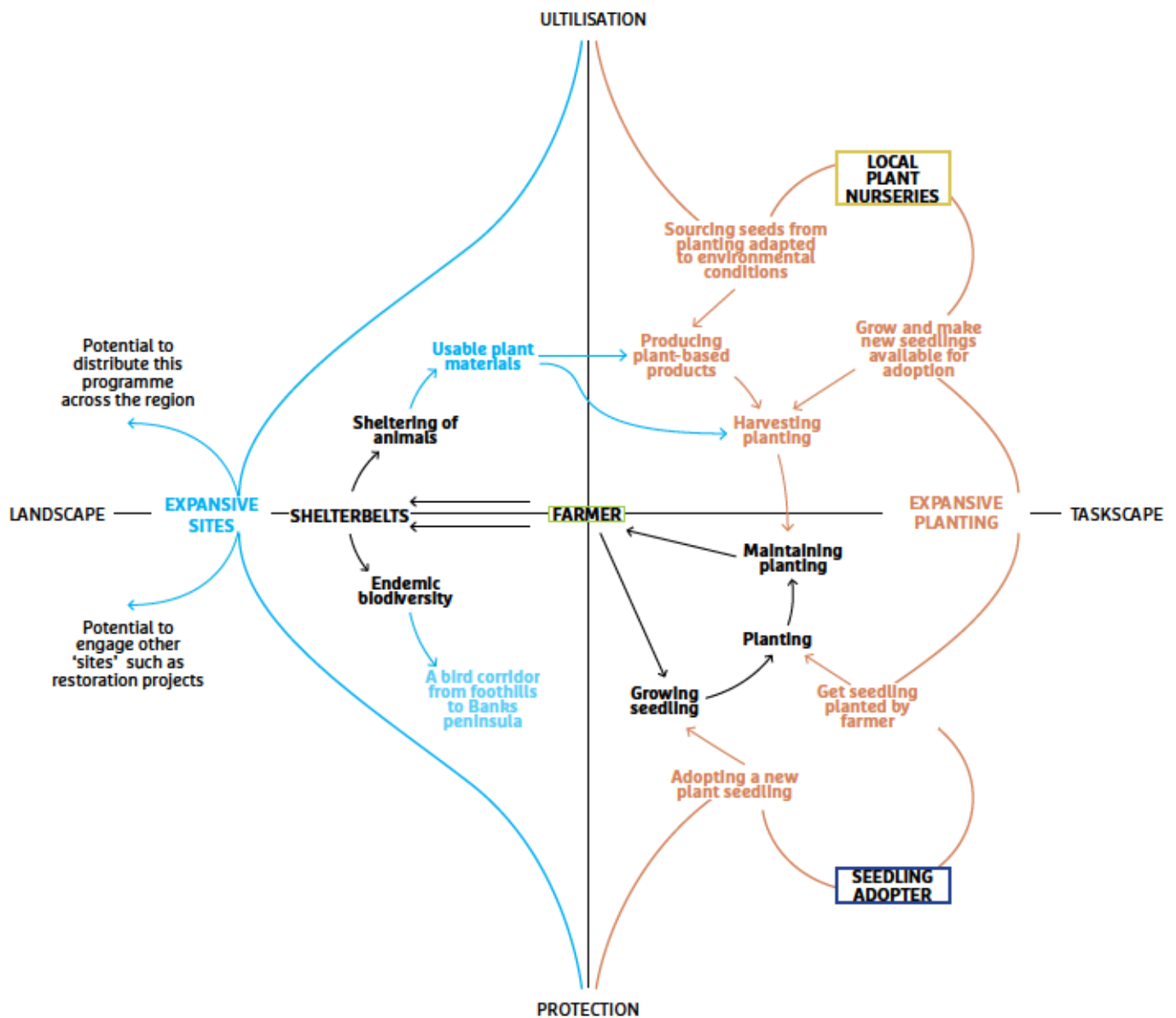


Figure 41. A quadrant-based exploration and representation of scenario two – imagining a future ‘taskscape’ scenario in which a crowd-sourced seed farming operation could take place at Te Whenua Hou, growing it into a ‘catalytic’ plant nursery that could provide eco-sourced planting for other farms in the region

Scenario Three – Designing site as product: trialing a provenance-driven product that links endemic plant cropping to the sharing of skills and knowledge between producers and consumers beyond the site

While Te Whenua Hou's goals to generate profit from utilising the planting as resources are clear, it is unclear what form this could take. This scenario explores such opportunity, by re-imagining the regenerative planting as a form of 'cropping'. Currently, planting is carried out by the property owner primarily for its ecological benefits. However, this could one day be harvested to generate profit for incremental planting. This scenario considers one set of practices that could explore this opportunity. It draws inspiration from the Ahikā Kai programme, especially in how it allows locals and consumers to engage in reciprocal learning and sharing of knowledge and place-based connections. Figure 43 explores a product-based design for engaging people with the attentive involvement of working and crafting with endemic plant materials.

This mapping explores a potential for productive landscape to engage consumers with the diverse practices of working with endemic planting, as opposed to being closed off from its consumers. In this, reserve plots at Te Whenua Hou have been considered as productive areas for growing endemic 'crops'. These could be harvested on a order-by-order basis to source materials for the producer, which is then 'sold' as a 'DIY kit':

1. Customer places an customised order online to choose their plant materials and product they wish to craft
2. Farmer receives order and harvests the materials to source to producer
3. Producer packages material as a kit-set and delivers to the customer

4. The customer scans QR code on the kit and discovers the origins and care-taker of the plant (farmer), video guiding them on how to craft the product (producer)
5. The product is made and gifted to a family/ friend
6. Scanning the final QR code will play an interactive experience on the full story behind the gift, its plant and the people that have been engaged

Over time, more plots could be grown to provide for other producers around the country. Diverse selections of planting could also be explored as different producers sign up to experiment on different 'kits'. Here, the site has been re-imagined as a product for distributing the set of skills and connections of working with endemic plant materials to consumers so that they can grow a connection to the planting efforts at Te Whenua Hou.

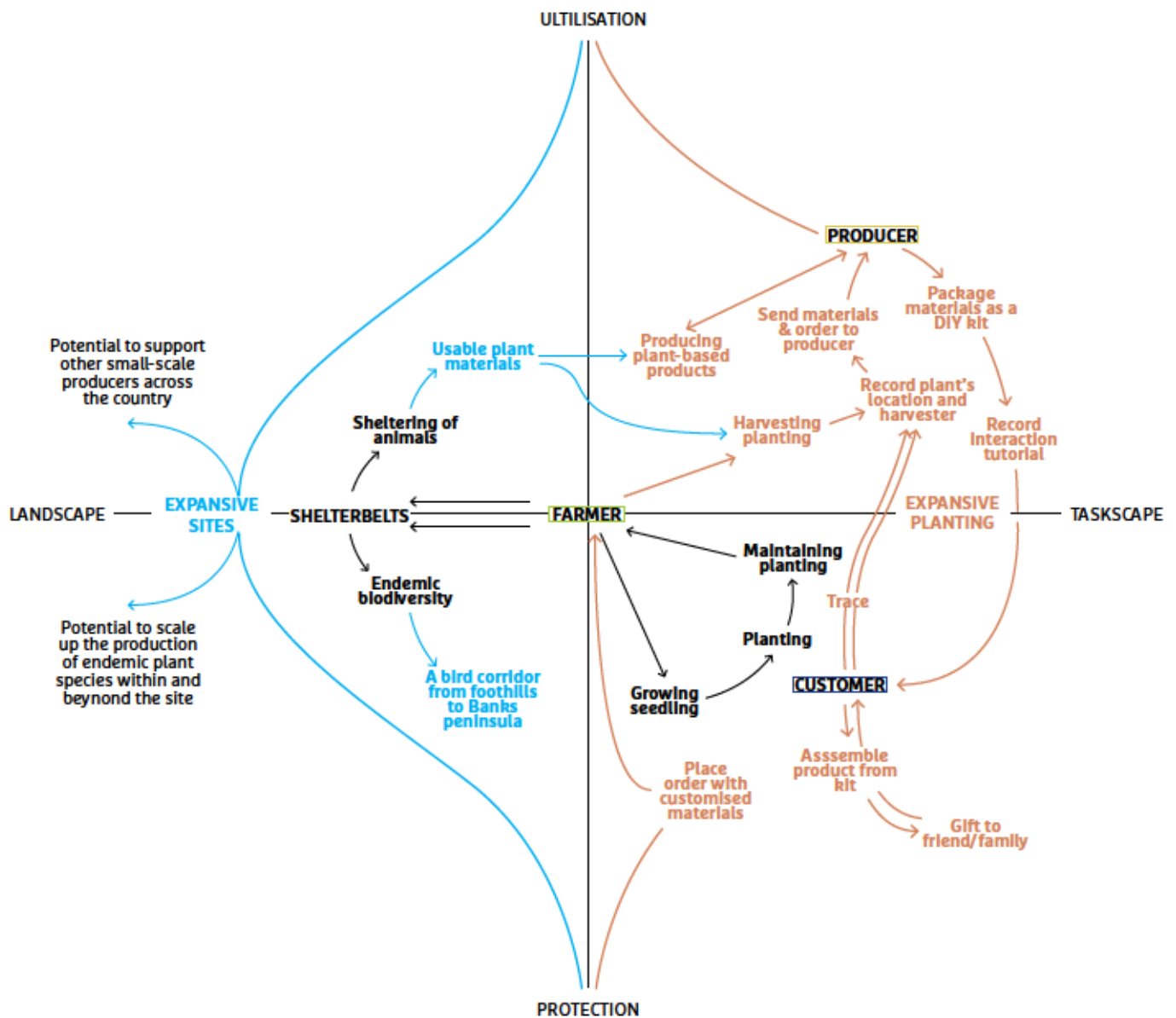


Figure 42. A quadrant-based exploration and representation of scenario three – exploring the idea of a mahinga kai-driven product that is based around the embodied engagement with endemic plant species

5.4. Design investigation: Key insights and descriptive comparison of designed scenarios

Nassauer and Corry states, "All prospective scenarios can be powerful stimulants to our imagination" (2004: 354). To this I have purposely focused the generation process on imagining alternative mahinga kai-driven practices, as opposed to seeking out interventions that could provide for traditional practices. These have explored how restoration-based activities could be part of the harvesting of resources, so that the relationship between people and nature can be reciprocal. This has enabled an exploration of the quadrant method as a tool for inquiry and idea generation, as opposed to being merely for a descriptive tool. The key value this tool has been the capacity for designing landscape in relation to taskscape – allowing a direct designing of practices, activities and interactions as mechanisms for shaping the landscape. Figure 44 shows a summary of all three scenarios.

In this all scenarios have placed an emphasis on expanding the realm of the taskscape. This has led to a generation of normative 'taskscape' scenario, which focuses on using the impact of people as a mechanism for landscape regeneration. For example, farmers have been re-imagined as the kaitiaki of Te Whenua Hou, whose efforts in maintaining the planting are celebrated and reciprocated with producers, local nurseries and consumers. As Meyer suggests, "landscape architecture can play a role in building sustained public support for the environment" (2008: 7). This scenario

suggests a designing of taskscape could open landscape architecture to the possibility of creating social cohesion in otherwise contentious landscapes such as dairy farms. Focusing on the taskscape has also meant that the 'site' could be more than a designing of plant selection and ecological functions. Rather, this process investigations landscape design in the form of programme, app-based technology and product. As Abbott argues, landscape architecture have the potential to "design behaviors, tools, technologies, devices, and strategies where endemic biodiversity and ecological resilience are nurtured" (2015: 38). Designing with the concepts of mahinga kai have helped contextualise and teased out this potential, by a designing of 'site' that focuses on interrelationships and reciprocal social-ecological processes.

These scenarios have also been generated as dialogues for 'open-ended' discussions, as opposed to being the final solutions to a problem. Using a quadrant diagram to express complex scenarios could better facilitate inputs from experts and locals. It could also allow for new relationships to be formed as each set of interactions implicitly span across the 'utilisation' and 'protection' of resources, as opposed to solely focusing on either. This could offer an opportunity for the design of productive and protected landscapes to consider the simultaneous use and protection of resources and ecology, as a set of interactions and engagement, as opposed to policy and restrictions.

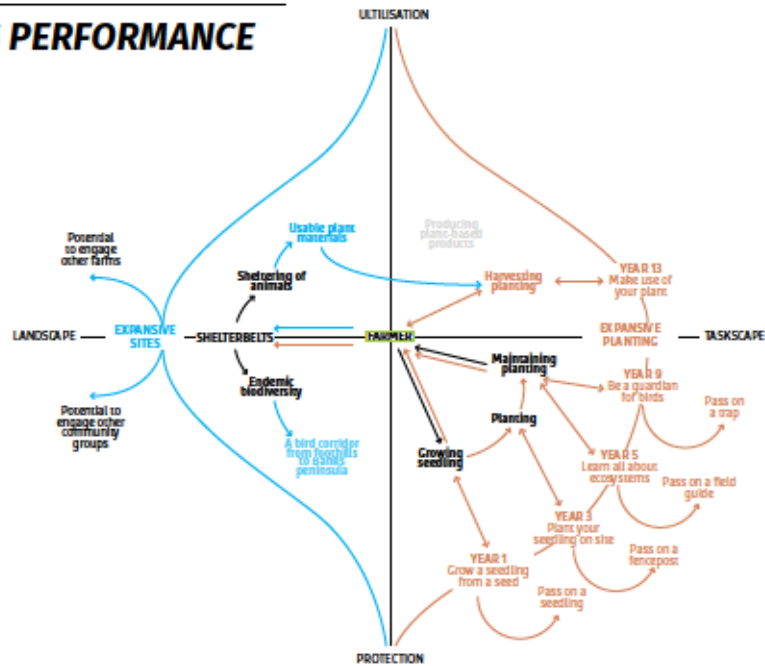
SCENARIO ONE - SITE AS PERFORMANCE

OPPORTUNITY

Design could programme a series of interlocking rituals, performances, exchanges and rites of passage, in which youth and elders could engage each other and with nature in an intergenerational learning process of mahinga kai practices.

RESPONSE

Programming an intergenerational planting programme that engages farmers and school pupils as 'elders and youth' in a series of tasks, events and 'rites of passage'



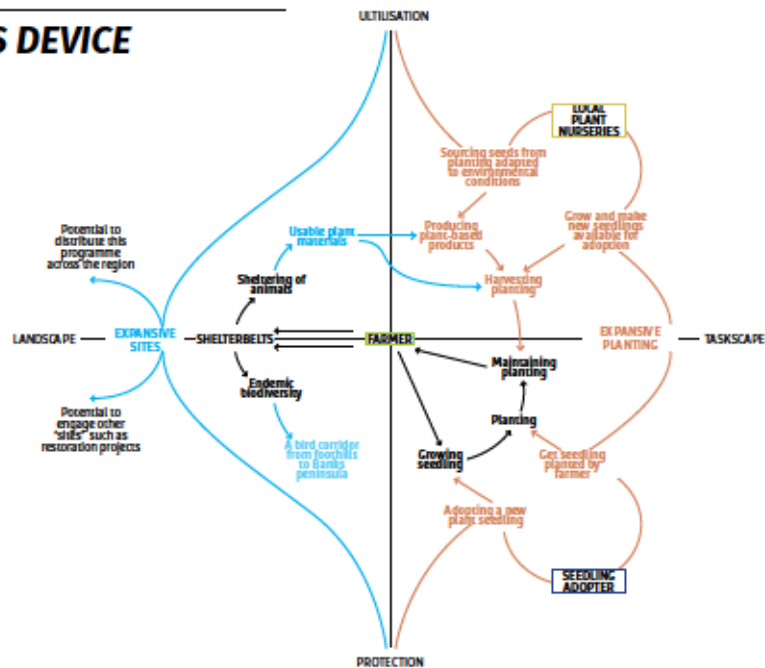
SCENARIO TWO - SITE AS DEVICE

OPPORTUNITY

Technology-based design could activate 'site' as a device, which engages people with a diverse set of mahinga kai-driven practices that allow them to better connect with nature

RESPONSE

Programming an app-based seed farming operation at Te Whenua Hou to create a distributed nursery for regenerative planting on other farms and sites



SCENARIO THREE - SITE AS PRODUCT

OPPORTUNITY

Provenance-based products could be designed to connect 'outsiders' with the practices and responsibilities 'inhabitants' carry out in working the local resources

RESPONSE

Trialing a provenance-driven product that links endemic plant cropping to the sharing of skills and knowledge between producers and consumers beyond the site

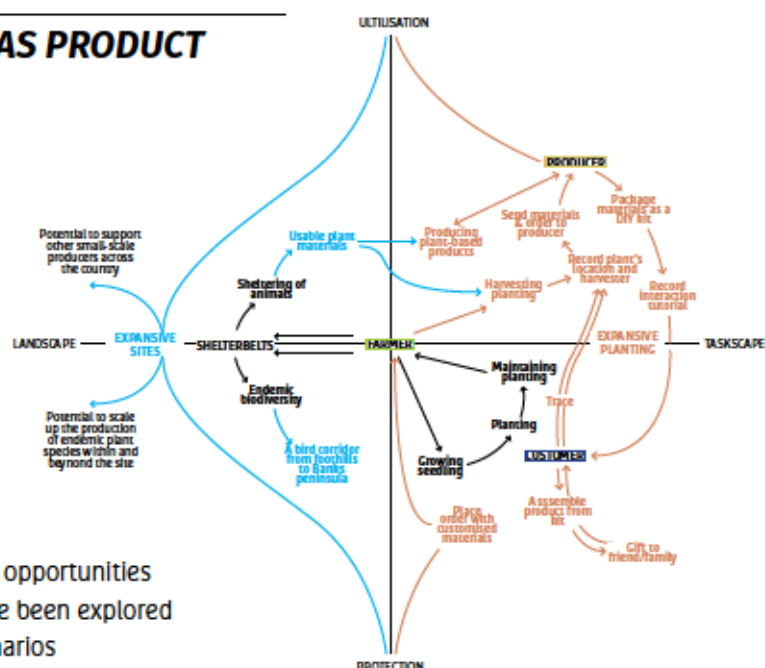


Figure 43. Summary of the design opportunities and responses that have been explored in the three design scenarios

The scenarios have been explored as part of a response to Abbott's paper in presenting the project of Te Whenua Hou as a "catalyst". With the insights discussed above, I have concluded this phase by proposing a list of challenges back to the design at Te Whenua Hou in the form of questions. These could be adopted in the future as design prompts for further experimenting with the designing of alternative mahinga kai-driven practices. These questions are:

- Could planting design be re-imagined from patterns, meanings and functions, to a direct designing of planting-driven practices and "substantive interactions, that can operate at a scale and in ways that landscape and environment are materially changed"? (Abbott, 2018: 19)
 - Could the 'everyday stewardship' of farmers be celebrated and shared with those "both within and beyond the terra firma of a bounded physical site"? (Abbott, 2018: 12)
 - Could the story of regenerative planting be interpreted by landscape architecture "to strengthen the provenance of the farm's produce, and with it increase value and margin"? (Abbott, 2018: 12)
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chapter six

DISCUSSION

The key aim of this dissertation has been to develop and explore methods for landscape architecture in considering the concepts of mahinga kai with an overall research goal – to expand the discipline's scope in conceptualising and designing landscape as an influential shaper of people (Corner, 2014; Abbott, 2008, 2015, 2018; Abbott et al, 2018; Meyer, 2008). This research has been undertaken in response to three key questions.

6.1. Responding to the first question

The first question of this research has been 'How could concepts of mahinga kai expand landscape architecture's conceptualisation of landscape?' In response to this question, a literature review has been undertaken, which has led to an expansive understanding of mahinga kai and its related concepts, practices, values and worldview. In questioning how these have been currently adopted by landscape architecture in New Zealand, it has revealed significant opportunities for future research that bridges both topics. This process has also suggested an opportunity

for alternatives approaches that encompass the cultural complexity of mahinga kai and its many related concepts beyond the focus on traditional food and harvest. In response to this challenge, the concept of 'andscape' by Prominski has been adapted to provide a method that could expand landscape architecture's approach in working with the concepts of mahinga kai. This approach seeks to build possibility and focuses on probing insights, instead of developing definitions. Questioning the potential of this approach has led to a subsequent method to be developed in the research process – theoretical exchanges that analyse and investigate the concepts of mahinga kai beside Ingold's work on 'The Temporality of The Landscape' (1993). Exploring the connections between these two sets of concepts has developed a synthesised conceptualisation of landscape. Not only has this approach helped theoretically underpin much of the previous understanding of landscape, and has led to an expansive conceptualisation of landscape, but could also expand the imaginative scope of landscape architecture in 'designing with nature'.

A focus on theoretical exchanges draws immediate focus to the relevance of mahinga kai to landscape architecture. This suggests an opportunity in future research to explore other landscape-led theory as lens for conceptualising the concepts of mahinga kai, and in return expand the discipline's understanding of landscape.

The insights generated from this process draw a focus to the temporality of landscape that is 'social-ecological' (Palomo, Montes, Martin-Lopez, González, García-Llorente, Alcorlo & Mora, 2014). For landscape architecture this means a shift from understanding temporality in terms of seasonal changes and natural processes, to encompass the social activities, rituals and performances people carry out in relation to these ecological cycles.

This approach places an emphasis on conceptualising landscape in relation to taskscape. This means a shift from understanding 'site' as physical places and systems, to a palette of interactions and engagement between people and nature. This emphasis on practice could provide landscape architecture a lens into how 'site' could be produced by people's engagement, as opposed to a place to be shaped (Abbott, 2015).

Limitations and potentials for future research: question one

The key limitation of this research is the time constraint that limits the breadth and depth of the literature review process, especially for examining the rich and diverse concepts that

associate with mahinga kai. There are also limitations to an approach based on theoretical exchanges. For example, not all landscape-led theories might be relevant to the concepts of mahinga kai. This is particularly problematic considering the multi-interpretive nature of mahinga kai and how their interpretation could differ from group to group (Roberts et al, 1995). This suggests a potential in future research of landscape architecture in exploring what are other landscape-led theory that could be applied to conceptualise and mahinga kai

6.2. Responding to the second question

The second research question has been 'What tools could be adapted to progress and ground these insights into a tool for conceptualising landscape and site?' As a response to this question, a quadrant-based tool has been adapted and developed. This has helped teased out insights on mahinga kai and landscape, by contextualising them with a case study – the Rakiura tītī harvest. This process has led to method of mapping that is sequential and layered. This has acted as a tool for inquiry that has helped conceptualisation the practice of tītī harvest. The potential of such a method is twofold. First, the mapping of tītī harvest has unfolded over time; each time adding another dimension and revealing a number of interrelationships between both the 'site' and the practices of tītī harvest. Much like Ingold's woven understanding of the landscape

and taskscape, this mapping is never-finished, it is open-ended and permanently under “construction” (1993: 199). For landscape architecture this could strengthen methods for reading landscape, which engages locals to add in layers that matter to them. Thus the act of mapping becomes both analytical and social. Second, much like Prominski’s concept of ‘andscape’, this approach conceptualises landscape as a living phenomena that is neither completely ‘culturalised’ or naturalistic, but rather is a continual melding of the two. It begins by mapping tītī harvest as a set of features, but as it unravels, these features have ‘become’ interrelated and ‘mutually generative’. Further to this, the simultaneous mapping of resource ‘utilisation’ and ‘protection’ imply a positive and reciprocal relationship between the ‘harvester’ and the ‘harvested’. This is especially important for landscape architecture in Aotearoa, New Zealand, as it negotiates the de facto discussion of this country’s division as either productive or protected landscapes (Park, 2006). Thus this tool provides a tool to re-imagine how people and their practices could be a positive influence to nature. As Panelli and Tipa argues, the expansive practices of mahinga kai result “in a living landscape of human and other interactions” (2009: 460).

6.3. Responding to the third question

The third question of this research has been ‘What is the generative potential of this tool in generative design scenarios?’ To explore this question, a designed landscape – Te Whenua Hou, has been chosen to provide a situation for grounding the design investigation process. This has led to a iterative scenario generation process that uses the quadrant tool as a method for inquiry and building possibility. From this, three normative landscape scenarios have been generated; each imagines a set of alternative mahinga kai-driven practices that could materially improve the ecological and productive landscape of Te Whenua Hou. This approach suggests a number of opportunities for landscape architecture in designing places as shaper of people. First, this engages with an expansive scoping of ‘site’ beyond a designing of systems and forms that could improve nature; instead, this allows a direct designing of interactions and engagement between people and nature. This provides a direct response to Abbott’s goals in ‘Practices of The Wild’, in which he suggests an opportunity for designing “behaviors, tools, technologies, devices, and strategies where endemic biodiversity and ecological resilience are nurtured” (2015: 38). This approach also implies a shift from designing nature as ecology (McHarg, 1969), to designing nature through people’s influence in generating desired landscape outcomes. Second, this method advocates for a direct designing of a landscape’s temporality, as

opposed to merely representing it. This directly responds to Copley's work, in which she investigates a designing of time-based interventions that allow community to adapt to undesirable landscape change (2014). The method explored here could enable landscape architecture to design time-based interventions such as rituals, performances and events that bring together both socio-cultural and ecological cycles and rhythms. Third, as Weller argues, the prevalent method of GIS "lack the specificity necessary to truly ground those values in the dynamic and highly nuanced ecological and cultural complexity of real places" (2017). By focusing on designing alternative mahinga kai-driven practices, this method implies a bottom-up approach to engage those who share deep connections with places.

Limitations and potentials for future research: question two and three

There are some limitations to this adaptation of the quadrant tool, both 'analytically' and 'generatively'. While it allows for an expression of temporality and spatiality, it struggles to explicitly represent the depth of time in place and practice. For instance, its capacity in exploring and expressing how the landscape might change over time as a result of the taskscape could be explored in future research. This could be a challenge for landscape architecture as much of the discipline reply on an accurate mapping of time and space. Perhaps this tool could be explored further in terms of how it might work with other tools such as GIS. The generative potential of this tool in designing forms have also not been explored due to time constrain. An opportunity suggested here is how to imagine alternative 'mahinga kai-driven forms' that could enable designed practices and activities.

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chapter seven

CONCLUSION

In the Anthropocene, it is more important than ever for landscape architecture to 'design with nature' – for we need to be re-imagining people's influence as a positive part of nature (Weller, 2017).

This requires an expansive conceptualisation of landscape, and an expanded scope of 'site' that embraces a direct designing of activities, performances, interactions, engagement and encounters (Abbott, 2008, 2015, 2018; Abbott et al, 2018; Corner, 2014).

In response to this opportunity, this research has investigated the imaginative potential of mahinga kai, and its interrelated concepts, practices, values and more. Concepts of mahinga kai invite a view on seeing the relationships between nature and people as reciprocal; in that through a diverse set of practices that involves the learning, harvesting, protecting and sharing of resources, people can develop deeper and reciprocal connections with nature. For landscape design this view requires a shift in how we approach behavioural design – here awareness and care for the environment comes from interaction and engagement, rather than the other way around as Meyer proposes (2008). The practices of mahinga kai

are based around values on the "simultaneous protection and use of resources" (Panelli & Tipa, 2009: 459). This relational understanding could be significant to landscape architecture tackling with the issues of biodiversity loss and agricultural production (Weller, 2017). Embracing these values could inspire the discipline to think beyond restorative design of ecological habitats that focuses on enabling harvesting of indigenous foods and resources – to imagine alternative mahinga kai-driven practices everyone could participate in ways a ecologically resilient and economically viable landscape could be produced. Enabling innovation, learning and experimentation are also essential to the practices of mahinga kai (Moller et al, 2009; Panelli & Tipa, 2009; Turner et al, 2012). Designing landscapes of the anthropocene require us to also be innovative and experimental – for how could landscape architecture adapt and respond to the challenges of this century if our tools and methods remain the same?

This research shows concepts of mahinga kai could make much stronger significant contribution to the development of landscape architecture. Manaakitanga and reciprocity have the potential to contribute back by

growing the influence of these concepts. The research process has revealed some of the possible ways landscape architecture could extend their exploration of the concepts of mahinga kai. Given these methods and tools, and the discipline's knowledge of the value of landscape, landscape architecture have the capacity to embrace the cultural complexity of mahinga kai and its concepts; to not only appreciate its value, but to actively engage and explore their imaginative potentials in designing landscapes as influential shaper of people and their relationships with nature. For this to be realised in substantive and genuine ways, the discipline should engage and work with communities and people that share extensive knowledge and deep connection with the concepts of mahinga kai.

For landscape architecture working in Aotearoa, New Zealand, the Anthropocene is an exciting time – as we are placed with concepts and landscapes that could shape our identity as a discipline.

Just as McHarg has significantly influence in how the discipline around the world conceptualise and design landscape, perhaps the next generations of landscape architects in Aotearoa New Zealand could do the same – to design nature through the positive influence of people, and from this, engage them in interactions and engagement that could directly and materially shape the landscape.

Just as Prominski put forward the concept of 'andscape' to abandon the discipline's dualistic view of nature and culture, could the next generations of landscape architects in this country develop and explore concepts with the same ambition? Here, imagine there is no longer a 'productive' or 'protected' landscape – instead, every landscape is a "living landscape" that shape, and is shaped by traditional, contemporary and future practices of mahinga kai that engage all peoples in the caring, restoring, learning, innovating, harvesting and sharing of resources. This is not just a re-conceptualisation of landscape, but a re-imagination on how we let a "living landscape" shape the ways we design.

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***WEAVING MAHINGA KAI
AND
LANDSCAPE ARCHITECTURE:***

*Design with nature through
people-ecology interactions*

Woody Lee